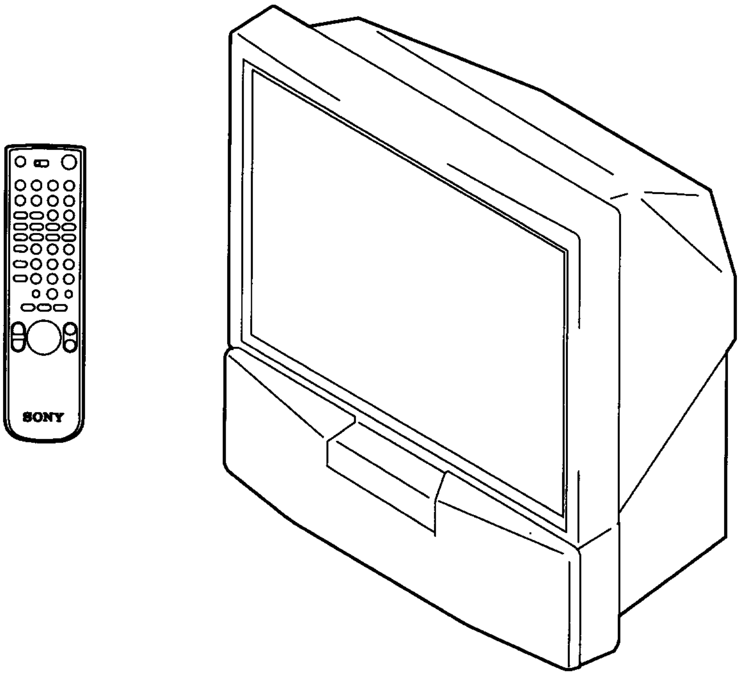
SERVICE MANUAL RE-2 CHASSIS

MODEL	*COMMANDER*	*DEST.*	*CHASSIS NO.*	*MODEL*	*COMMANDER*	*DEST.*	*CHASSIS NO.*
KP-41S4	*RM-862*	*AEP*	*SCC-N61A-A*	*KP-41S4K*	*RM-862*	*OIRT*	*SCC-N62A-A*
KP-41S4B	*RM-862*	*French*	*SCC-N63A-A*	*KP-41S4R*	*RM-862*	*Russ*	*SCC-N62B-A*
KP-41S4G	*RM-862*	*Greek*	*SCC-N60B-A*	*KP-41S4U*	*RM-862*	*UK*	*SCC-N61A-A*



MICROFILM

* Please file according to model size. ....☐

41

PROJECTION TV

SONY®

SPECIFICATIONS

Television system	B/G/H,D/K,I,L
Colour system	PAL/SECAM NTSC 3.58/NTSC4.43(VIDEO IN)
Channel coverage	See " Receivable channels and channel displays " on this page.
Projected picture size	41 inches Approx. 103cm measured diagonally
Terminals	
Rear	Center speaker input terminals, 2 terminals ○→ (L, R), audio outputs-phono jack →⊡ 1 21-pin Euro connector (CENELEC standard) - inputs for audio and video signals - inputs for RGB - outputs of TV audio and video signals ⊡→ 2/ →S 2 21-pin EURO connector - inputs for audio and video signals - inputs for S Video - outputs for audio and video signals (selectable) ⊡→ 3/ →S 3 21-pin Euro connector - inputs for audio and video signals - inputs for S video - outputs for audio and video signals (selectable, the same output source as the ⊡→ 2/ →S 2 connector)
Front	→S 3 S video input-4-pin DIN →⊡ 3 video inputs-phono jack →○ (L.R), Audio inputs-phono jacks ∩ Headphone jack -stereo minijack
Sound output	2 x 30W (music power) 2 x 15W (RMS)
Centre SP input	30W (RMS)(using as the centre speaker)
Power consumption	155W
Dimensions(WxHxD)	948x992x 511 mm ($37^3/_8$ x $39^1/_8$ x $20^1/_8$ inches)
Mass	Approx. 43kg (94 lbs 13 oz)
Supplied accessories	See page 6.
Other features	Digital comb filter (High resolution) FASTEXT

Design and specifications are subject to change without notice.

Receivable Channel and Channel Displays

	Receivable channel	Iudication on the screen
B/G/H	E2..12 21..69	C02 C03 C04..C12 C21..C69
CABLE TV (1)	S1..41	S01 S02..S41
CABLE TV (2)	S01..S05 M1..M10 U1..U10	S42..S46 S01..S10 S11..S20
ITALY	A B C D E F G H H1 H2 21..69	C11..C69
D/K	R01..R12 R21..R69	C02..C12 C21..C69
CABLE TV (1)		S01 S02..S41
CABLE TV (2)		S42 S43..S46
CABLE TV	B.. O S21..41	S02.S03..S17. S21..S41
L	F2..F10 F21 F69	C01..C12 C21..C69
I	B21..B68	C21..C68

TABLE OF CONTENTS

Section Title Page

1. GENERAL

Overview 4
Getting Started
Step 1 Preparation 5
Step 2 Tuning in to TV Stations 5
Step 3 Adjusting Colour Registration (Convergence) 6
Additional Presetting Functions 7
Operating Instructions
Watching the TV 9
Adjusting and Setting the TV Using the Menu 10
Teletext 11
Connecting and Operating Optional Equipment 12
For Your Information 14
  Optimum Viewing Area 14
  Troubleshooting 14

2. DISASSEMBLY

2-1-1. Rear Board Removal 15
2-1-2. Main Bracket Section Removal 15
2-1-3. Service Position 15
2-1-4. G Board Removal 15
2-1-5. AE Board and UE Board Removal 16
2-1-6. H1 Board, H2 Board and Resistor (High Voltage)Removal 16
2-1-7. BEZNNET Section Removal 17
2-1-8. High-Voltage Cable Installation and Removal 17
2-1-9. Mechasel Assy Removal 17
2-2. Chassis Block Removal 18
  (1) y 18
  (2) 1 18

3. SET-UP ADJUSTMENTS

3-1. Screen Voltage Adjustment 19
3-2. Focus Lens Adjustment 19
3-3. SCREEN (G2) Adjustment 19
3-4. Focus VR Adjustment 19
3-5. Deflection Yoke Tilt Adjustment 20
3-6. 2-Pole Magnet Adjustment 20
3-7. 4-Pole Magnet Adjustment 20
3-8. Defocus Adjustment (Blue) 20

4. CIRCUIT ADJUSTMENTS

4-1. Electricar Adjustments 21
  How to enter into service mode 21
4-2. Service list 23
4-3. Registration (Convergence) Adjustment Method 26
  PAL Registration Adjustment 26
  Center Adjustment 26
  Size Adjustment 26
  Main Deflection Adjustment 26

Section Title Page

  Sub Deflection Adjustment Item 27
  Vertical Line Adjustment 27
  Horizontal Line Adjustment 28
  Size and Linearity Adjustment 28
  Horizontal Size Adjustment 28
  Green Vertical Linearity Adjustment 28
  Green Vertical Size Adjustment 29
  Green Horizontal Trapezoidal Distortion Adjustment 29
  Green Horizontal Quaternary Adjustment 29
  Green Horizontal Asymmetrical Pin Distortion Adjustment 29
  Green Horizontal Symmetrical Pin Distortion Adjustment 30
  Green Vertical Wave (3rd-Order) Distortion Adjustment 30
  Green Vertical 4th Order Distortion Adjustment 30
  Green Vertical Trapezoidal Distortion Adjustment 30
  Green Vertical Asymmetrical Pin Distortion (2nd-Order Distortion) Adjustment 31
  Green Vertical Asymmetrical Pin Distortion Adjustment 31
  Green and Red Registration Adjustment 31
  Green and Blue Adjustment 31
4-4. AGC Adjustment 31
4-5. White Balance Adjustment 32
4-5. Text Position Adjustment 32

5. DIAGRAMS

5-1. Block Diagram (1) 33
  Block Diagram (2) 37
5-2. Frame Schematic Diagram 40
5-3. Circuit Boards Location 44
5-4. Printed Wiring Boards and Schematic Diagrams 44
  • G Board 45
  • AE(1/2) Board 53
  • AE(2/2) Board 58
  • H1 Board 63
  • H2 Board 64
  • E Board 65
  • D Board 71
  • ZR Board 78
  • ZG Board 79
  • CR Board 81
  • CG Board 82
  • CB Board 84
  • UE Board 85
5-5. Semiconductors 86

6. EXPLODED VIEWS

6-1. SCREEN AND COVER 88
6-2. CABINET AND PANEL BLOCK 89
6-3. CHASSIS AND PICTURE TUBE 90

7. ELECTRICAL PARTS LIST 91

(CAUTION)

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESECOMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFEOPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

(ATTENTION)

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURTCIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION AUX COMPOSANTS RELATIFS ÁLA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MAPQUE ⚠ SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIECES CONT D'UNEIMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIES DANS LE PRÉSENT MANUEL. SUIVRE CES PROCÉDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTÉ.

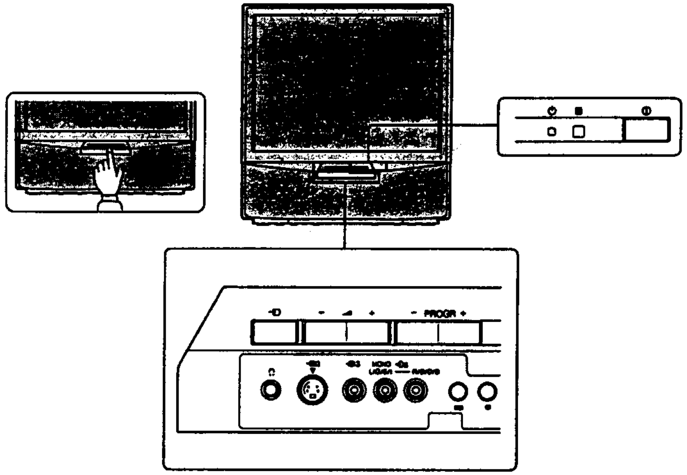
SECTION 1
GENERAL

The operating instructions mentioned here partial abstracts from the Operating Instructions Manual. The page numbers of the Operating Instruction Manual remain as in the manual

Overview

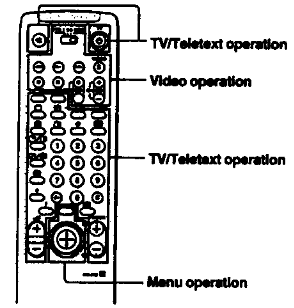
This section briefly describes the buttons and controls on the TV set and on the Remote Commander. For more information, refer to the pages given next to each description.

TV set-front



Symbol	Name	Refer to page
⏼	Main power switch	14
⏻	Standby indicator	14
PROGR+/–	Programme buttons	14
◿+/–	Volume buttons	14
-⊖	Input select buttons	15
∩	Headphones jack	20
-⊕ 3, -⊖ 3, -⊖ 3	Input jacks (S video/video/audio)	21
▣	Auto Preset button	8
⊟	Auto Convergence button	9

Remote commander



TV/Teletext operation

Symbol	Name	Refer to page
◀×	Mute on/off button	15
TV⏻	TV Standby button	14
▢	TV power on/TV mode selector button	14
⊜	Teletext button	15
-⊖/⊕	Input mode selector/	15
	Teletext: Freezing the subpage	18
⊖/⊕	Teletext: Reveal button	18
1,2,3,4,5,6, 7,8,9 and 0	Number buttons	14
-/--	Double-digit entering button	14
C	Direct channel entering button	13
◿+/–	Volume control button	14
PROGR +/–	Programme selectors	14
⊕⊖	Teletext: Page up/page down buttons	18
●	Picture adjustment button	16
♪	Sound adjustment button	16
⊞	On-screen display button	15
⊙	Time display button	15
⊟	Button to change Screen Format	15
➔	Teletext: Favourite pages button	19

Menu operation

Symbol	Name	Refer to page
MENU	Menu on/off button	See below.
⊕	Joystick for Menu selection	See below.
	Press to confirm selection (OK function)	

Video operation

Symbol	Name	Refer to page
VTR1/2/3, MDP	Video equipment selector	23
◀◀ ▶ ▶▶ ■ ❚❚ ● VIDEO ⏻ CH +/–	Video equipment operation buttons	23

No function on this set

Symbol : ⊖/⊕, ⊘/⊕, ⊕, •, ⊖, ⊖, ⊖/⊕ (for TV operation)

For the Menu System

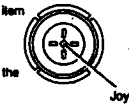
Use the MENU button and the joystick as follows.

1 Press MENU button to switch menu on or off.

2 Use the joystick as follows:

GREEN: scroll up

RED:
decrease/back to last item or to last menu
When menu is not displayed:
Push to red to display the last menu screen



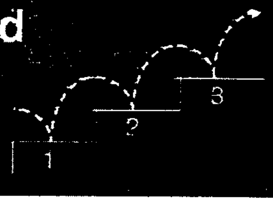
YELLOW:
increase/forward to next item

Joystick: Press at its neutral position to confirm selection or store

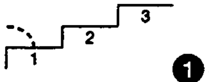
BLUE: scroll down

The operable functions of the joystick are displayed on the screen.

Getting Started



Step 1 Preparation

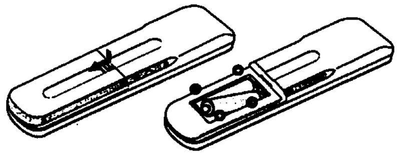


❶ Check the Supplied Accessories

When you've taken everything out of the carton, check that you have these items:

- RM-862 Remote Commander
- Two IEC designation R6 batteries
- Wrench (1)
- Bracket (2)

❷ Insert the Batteries into the Remote Commander

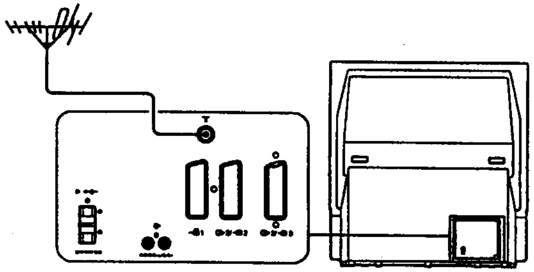


Remove the cover.

Check the correct polarities.

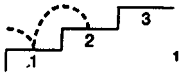
Note: Always remember to dispose of used batteries in an environmentally friendly way.

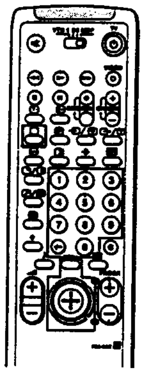
❸ Connect the Aerial

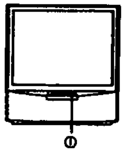


Fit an IEC aerial connector attached to 75-ohm coaxial cable (not supplied) to the 'T' socket at the rear of the TV.

Step 2 Tuning in to TV Stations







❶ Choose a Language

1 Depress ① (main power switch) on the TV.
The TV will switch on. If the standby indicator on the TV is lit, press ○ or a number button on the Remote Commander.

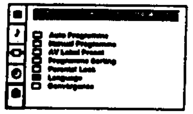
2 Press MENU.

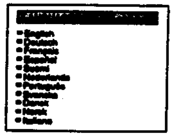
3 Push the joystick to blue or green to select the symbol ⌸, then push to yellow.
The PRESET menu appears.

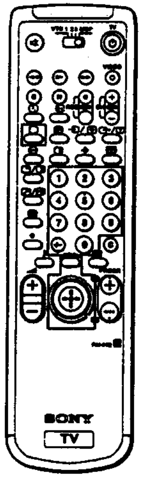
4 Push the joystick to blue or green to select "Language", then push to yellow.

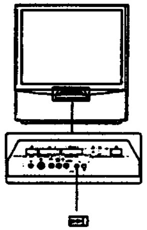
5 Push the joystick to blue or green to select the language you want, then push to yellow.

6 Press MENU to restore the normal TV picture.









❷ Preset Channels Automatically

With this function, the TV automatically searches and stores up to 100 channels onto programme positions. If you prefer "Presetting Channels Manually", please refer to page 10 in Additional Presetting Functions.

1 Depress ⏻ (main power switch) on the TV.
The TV will switch on. If the standby indicator on the TV is lit, press ⏻ or a number button on the Remote Commander.

2 Press and hold the ▭ on the TV until the automatic menu is displayed and the search starts.
After all available channels are stored, the normal TV picture is shown.

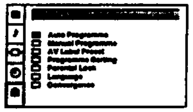
Presetting channels automatically by using the Remote Commander

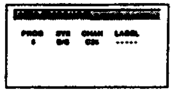
1 Press MENU.

2 Push the joystick to blue or green to select the symbol ▭, then push to yellow.
The PRESET menu appears.

3 Push the joystick to blue or green to select "Auto Programme".

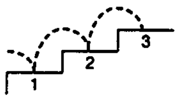
4 Push to yellow and hold until the AUTO PROGRAMME menu is displayed and the search starts.
After all available channels have been preset, the normal TV picture is shown.

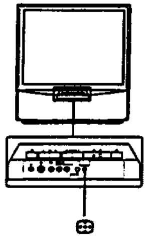


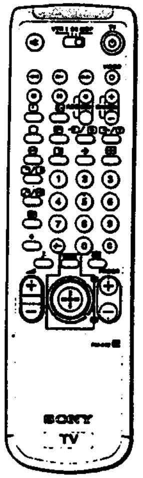


Note
You can sort the programme positions to have them appear on screen in the order you like. For details, see "Sorting Programme Positions" on page 11.

Step 3 Adjusting Colour Registration (CONVERGENCE)







Converge the Red, Green, and Blue Lines

1 Press ▭ button on the TV.

2 The Auto Convergence function works for about 30 seconds.

When the auto convergence function does not work correctly

Adjust the colour registration by selecting the "Convergence" of the PRESET menu.

1 Press MENU.

2 Push the joystick to blue or green to select the symbol ▭, then push to yellow.
The PRESET menu appears.

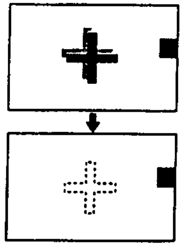
3 Push the joystick to blue or green to select "Convergence", then push to yellow.
The CONVERGENCE menu appears.

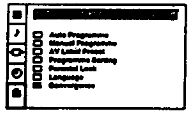
4 Push the joystick to blue or green to select "the line" (vertical and horizontal lines in red and blue) you want to adjust.
Press the joystick to confirm.
✛ : red vertical line (left/right adjustment)
✛ : red horizonta line (up/down adjustment)
✛ : blue vertical line (left/right adjustment)
✛ : blue horizontal line (up/down adjustment)
The line to adjust is selected.

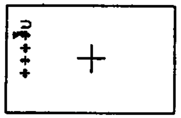
5 Push the joystick to blue or green to converge the selected line with the green line in the centre.
Press the joystick to confirm.

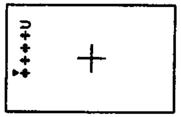
6 Repeat steps 4 and 5 to adjust the other lines, until all the lines have overlapped to form a white cross.

7 Press MENU to restore the normal TV picture.



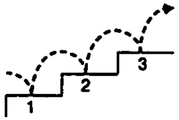






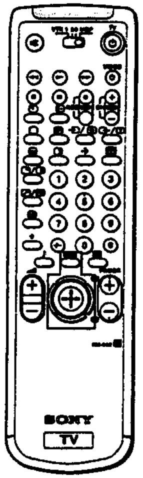
Note
The Auto Convergence function does not work:
- when no signal is input.
- when the input signal is weak.
- when the screen is exposed to spotlights or direct sunlight.
- when you watch the teletext broadcast.

Additional Presetting Functions



Presetting Channels Manually

MANUAL PROGRAMME PRESET



Using this function, you can preset channels one by one to different programme positions. This is also convenient to allocate programme numbers to video input sources.

1 Press MENU.

2 Push the joystick to blue or green to select the symbol ⌂ on the menu screen. Push to yellow to confirm the selection.

3 Push to blue or green to select "Manual Programme". Push to yellow to confirm the selection.

4 Push to blue or green to select the programme position (PROG) to which you want to preset a channel. Push to yellow to confirm.

5 Push to blue or green to select the TV broadcast system (SYS) (I for U.K., B/G for western European countries, D/K for eastern European countries, L for France) or a video input source (AV1, AV2, AV3, YC2, YC3, RGB). Push to yellow to confirm.

6 Push to blue or green to select "C" (for terrestrial channels) or "S" (for cable channels). You can also select "C" or "S" by pressing C on the Remote Commander. For selecting "C", press C once, and for "S", press it twice. Push to yellow to confirm.

There are two options to preset channels manually:

a) You know the channel number.
Please use method "Direct Input".
or

b) You don't know the channel number.
Please use method "Search".

7 a) Direct Input

Select the first number digit of "CHAN" (channel), then the second number digit of "CHAN" with the number buttons on the Remote Commander (e.g. for channel 2, first press 0, then 2).

7 b) Search

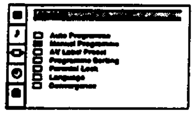
Push the joystick to blue or green to search for the next available channel.

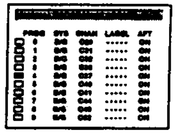
8 If you want to store the channel, go to step 9. If not, select a new channel using the number button on the Remote Commander or push the joystick to blue or green to resume the search.

9 Press the joystick to confirm.

10 Repeat steps 4 to 9 to preset other channels.

11 Press MENU to restore the normal TV picture.





Manual Fine-Tuning

MANUAL PROGRAMME PRESET

Normally, the automatic fine-tuning (AFT) function is already operating.

If the picture is distorted, however, you can manually fine-tune the TV to obtain a better picture reception.

1 Press MENU.

2 Push the joystick to blue or green to select the symbol ⌂ on the menu screen. Push to yellow to confirm.

3 Push to blue or green to select "Manual Programme". Push to yellow to confirm.

4 Push to blue or green to select the programme number which corresponds to the channel you want to manually fine-tune.

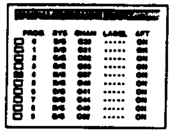
5 Push to yellow repeatedly until the AFT position changes colour.

6 Push to blue or green to fine-tune the channel frequency (–15 to +15).

7 Press the joystick to confirm.

8 Repeat steps 4 to 7 to fine-tune other channels.

9 Press MENU to restore the normal TV picture.



Sorting Programme Positions

PROGRAMME SORTING

This function enables you to sort the programme positions to a preferable order.

1 Press MENU.

2 Push the joystick to blue or green to select the symbol ⌂ on the menu screen. Push to yellow to confirm.

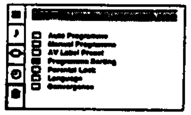
3 Push to blue or green to select "Programme Sorting". Push to yellow to confirm.

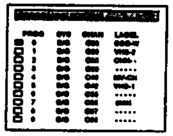
4 Push to blue or green to select the programme position of the channel you want to change. Press joystick to confirm.

5 Push to blue or green to select the programme position of the channel you want to exchange. Press joystick to confirm.

6 Repeat steps 4 and 5 to sort other programme positions.

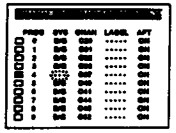
7 Press MENU to restore the normal TV picture.





MANUAL PROGRAMME PRESET

Skipping Programme Positions



This function enables you to skip unused programme positions when selecting them with the PROGR +/– buttons. However, by using the number buttons you can still select the skipped programme position.

1 Press MENU.

2 Push the joystick to blue or green to select the symbol ⏏ on the menu screen. Push to yellow to confirm.

3 Push to blue or green to select "Manual Programme". Push to yellow to confirm.

4 Push to blue or green to select the programme position you want to skip. Push to yellow to confirm.

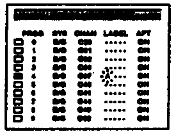
5 Push to blue or green to select "- - -" in the position SYS (system). Press the joystick to confirm.

6 Repeat steps 4 and 5 to skip other programme positions.

7 Press MENU to restore the normal TV picture.

MANUAL PROGRAMME PRESET

Captioning a Station Name



Channels are automatically labelled during presetting. You can, however, individually name a channel or a video source using up to five characters.

1 Press MENU.

2 Push the joystick to blue or green to select the symbol ⏏ on the menu screen. Push to yellow to confirm.

3 Push to blue or green to select "Manual Programme". Push to yellow to confirm.

4 Push to blue or green to select the programme position with the channel you want to label. Push to yellow repeatedly until the first element of the position LABEL is highlighted.

5 Push to blue or green to select a letter or a number (select "-" for a blank). Push to yellow to confirm. Select the other four characters in the same way.

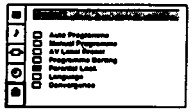
6 After selecting all characters, press the joystick to confirm.

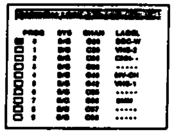
7 Repeat steps 4 to 6 to label other channels or video sources.

8 Press MENU to restore the normal TV picture.

PARENTAL LOCK

Using Parental Lock





This function enables you to prevent children from watching undesirable broadcasts.

1 Press MENU.

2 Push the joystick to blue or green to select the symbol ⏏ on the menu screen. Push to yellow to confirm.

3 Push to green or blue to select "Parental Lock". Push to yellow to confirm.

4 Push to green or blue to select the channel you want to block. Press the joystick to confirm.
The symbol 🔒 appears before the programme position to indicate that this channel is now blocked.

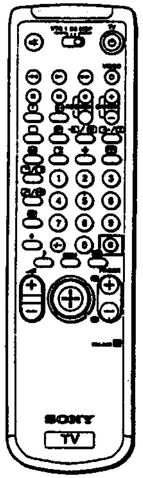
5 Repeat step 4 to block other channels.

6 Press MENU to restore the normal TV picture.

If you try to select a programme that has been blocked
The message "LOCKED" appears on the blank TV screen.

To unblock
Select the channel to unblock in the "PARENTAL LOCK" menu. Press the joystick. The symbol 🔒 disappears.

Tuning in a Channel Temporarily



You can tune in to a channel temporarily, even though it has not been preset.

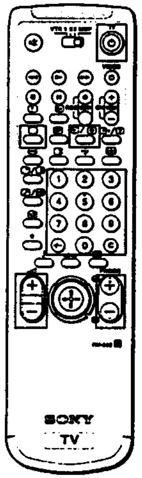
1 Press C on the Remote Commander. For cable channels, press C twice.
The indication "C" ("S" for cable channels) appears on the screen.

2 Enter the double-digit channel number using the number buttons (e.g. for channel 4, first press 0, then 4).
The channel appears. Note that the channel will not be stored.

Note
After you tune in a channel temporarily, you cannot enter the manual preset mode.
To store the channel, refer to the "Presetting Channels Manually" on page 10.

Operating Instructions

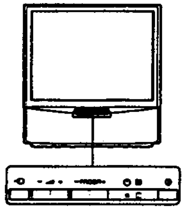
Watching the TV



If no picture appears when you depress Ⓘ on the TV and if the standby indicator on the TV is lit, the TV is in standby mode.
Press ◯, PROGR+/– or one of the number buttons to switch it on.

This section explains the basic functions you use while watching the TV. Most operations are done using the Remote Commander.

Switching the TV on and off



Switching on

Depress Ⓘ on the TV.

Switching off temporarily

Press ⏻ on the Remote Commander.
The TV enters standby mode and the standby indicator on the front of the TV lights up in red.

To switch on again

Press ◯, PROGR +/–, or one of the number buttons on the Remote Commander.

Switching off completely

Depress Ⓘ on the TV and the indicator on the front of the TV lights up in amber.

To save energy, we recommend you switch off your TV completely when the TV is not in use.

Selecting TV Programmes

Press PROGR +/– or press the number buttons.

To select a double-digit number

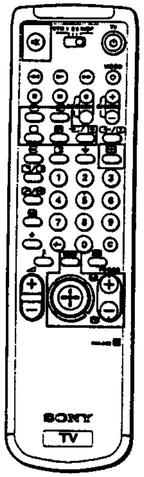
Press -/--, then the numbers.
For example, if you want to choose 23, press -/--, 2 and 3.

Adjusting the Volume

Press ◿ +/–.

Operating the TV Using the Buttons on the TV

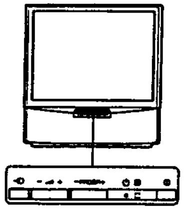
To select the programme number, press the PROGR +/– buttons.
To adjust the volume, press the ◿ +/– buttons.
To select the video input picture, press the -⊖ button.



For details of the teletext operation, refer to page 18.

For details of the video input picture, refer to page 21.

Watching Teletext or Video Input



Watching teletext

1 Press ⊜ to view the teletext.
2 For teletext operation, enter a 3-digit page number with the number buttons to select a page.
For fastext operation, push the joystick to the colour mark which corresponds to the colour-coded menu.
For both operations, press ⊕ (PAGE +) for the next page or ⊖ (PAGE –) for the preceding page.
3 To go back to the normal TV picture, press ◯ .

Watching a video input picture

1 Press -⊖ repeatedly until the desired video input appears.
2 To go back to the normal TV picture, press ◯.

More Convenient Functions

Displaying the on screen indications

Press ⊞ to display the indications.
Press again to make the indications disappear.

Muting the sound

Press ◀.
To resume normal sound, press ◀ again.

Displaying the time

Press ⊙. This function is available only when teletext is broadcast.
To make the time display disappear, press ⊙ again.

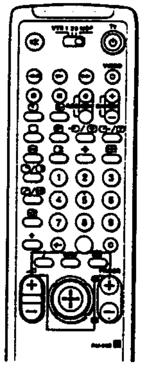
Viewing the programmes in 16:9 mode

Press ⊟ .
Press again to return to 4:3 mode.

Adjusting and Setting the TV Using the Menu

PICTURE CONTROL

SOUND CONTROL



Adjusting the Picture and Sound

Although the picture and sound are adjusted at the factory, you can adjust them to suit your own taste. You can also select dual sound (bilingual) programmes when available or adjust the sound for listening with the headphones.

1 Press ▀ (for picture) or ♪ (for sound) on the Remote Commander.

or

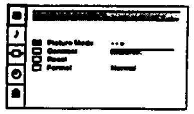
Press MENU and select the symbol ▦ for Picture Control or ♪ for Sound Control. Push to yellow to confirm.
The PICTURE CONTROL or SOUND CONTROL menu appears.

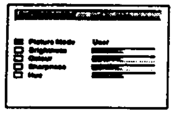
2 Push the joystick to blue or green to select the desired item. Push to yellow to confirm.
The selected item changes its colour.

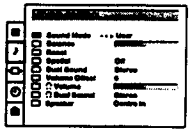
3 Push to red or yellow to adjust the selected item. Press the joystick to confirm.
For the effect of each control, see the table below.

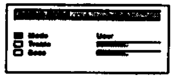
4 Repeat steps 2 and 3 to adjust other items.

5 Press MENU to restore the normal TV picture.









Note
HUE is available for NTSC colour systems only.

Note on LINE OUT
The dual sound mode output from the ⟳ jack on the rear corresponds to the Headphones Dual Sound settings.

When watching a video input source with stereo sound
You can select Dual Sound to change the sound.

Effect of each control

PICTURE CONTROL	Effect
Picture Mode	User ←→ Game ←→ Movie ←→ Sports ←→ Live
Brightness	Darker ——+—— Brighter
Colour	Less ——+—— More
Sharpness	Softer ——+—— Sharper
Hue	Greenish ——+—— Reddish
Contrast	Less ——+—— More
Reset	Resets picture to the factory preset levels.
Format	4:3: normal 16:9: wide screen effect

When "User" is selected in "Picture Mode"

You can preset Brightness, Colour, Sharpness and Hue (NTSC signals only) as follows:

1 Push the joystick to blue or green to select the desired item. Push to yellow to confirm.

2 Push to red or yellow to adjust. Press the joystick to confirm.

3 Push to red to return to the PICTURE CONTROL menu.

SOUND CONTROL	Effect
Sound Mode	Choice between different sound effects User ←→ Rock ←→ Jazz ←→ Pop
Treble	Less ——+—— More
Bass	Less ——+—— More
Balance	More left ——+—— More right
Reset	Resets sound to the factory preset levels.
Spatial	Off: normal On: acoustic sound effect
Dual Sound	A: left channel B: right channel Stereo → Mono The selected mode of the A-CD-B indicator on the TV lights up.
Volume Offset	Presets the volume level for individual programmes. −12 ——+—— 12
🎧 Volume	Less ——+—— More
🎧 Dual Sound	A: channel 1 → B: channel 2 Stereo → Mono
Speaker	Main: sound from TV set Centre in: sound from external amplifier

When "User" is selected in "Sound Mode"

You can preset Treble and Bass as follows:

1 Push the joystick to blue or green to select the desired item. Push to yellow to confirm.

2 Push to red or yellow to adjust. Press the joystick to confirm.

3 Push to red to return to the PICTURE CONTROL menu.

TIMER

To switch off the timer
Select "OFF" in step 3.

To check the remaining time
Press ⊕.

To go back to the normal TV picture
Press MENU.

Using the Sleep Timer

You can select a time period after which the TV automatically switches into standby mode.

1 Press MENU.

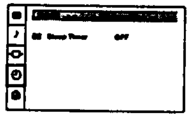
2 Push the joystick to blue or green to select the symbol ⏲ on the menu screen. Push to yellow to confirm.

3 Push to yellow. Push to red or yellow to set time delay and press the joystick to confirm.

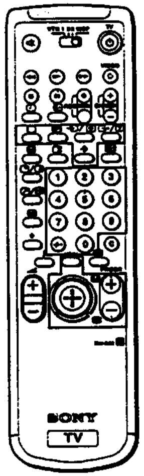
OFF←→0:30←→1:00←→1:30..........3:30←→4:00

4 Press the joystick to confirm.

One minute before the TV switches into standby mode, a message is displayed on the screen.



Teletext



Note
Teletext errors may occur if the broadcasting signals are weak.

TV stations broadcast an information service called Teletext via the TV channels.Teletext service allows you to receive various information pages such as weather reports or news at any time you want.

Direct Access Functions

Switching Teletext on and off

1 Select the TV channel which carries the teletext broadcast.you want to watch.

2 Press ⊜ to switch on teletext.
A teletext page will be displayed (usually the index page).
If there is no teletext broadcast, the indication P100 is displayed on a black screen.

3 Input three digits for the page number using the number buttons.
If you have made a mistake, type in any three digits. Then re-enter the correct page number.

4 Press ▢ to return to the normal TV picture.

Accessing next or preceding page

Press ⏶ (PAGE+) or ⏷ (PAGE–).
The next or preceding page appears.

Superimposing the teletext display on the TV programme

- Press ⊜ once to get Teletext only.
- Press ⊜ twice for Mix mode.
The normal TV screen and the Teletext screen are overlapped.

Preventing a teletext page from being updated

- Press ⊕.
The symbol "⊕" is displayed on the information line.
Press again to cancel.
- Press ⊜ to resume normal teletext reception.

Revealing hidden information (e.g. for a quiz)

Sometimes pages contain concealed information, such as answers to a quiz. The reveal option lets you disclose the information.
Press ⊙. Press again to cancel.
Press ⊜ to resume normal teletext reception.

Favourite page system

You can store up to four of your favourite teletext pages per Teletext service. In this way you have quick access to the pages you frequently use.

Storing pages

1 Use the number buttons to select the page you would like to store.

2 Press ⇨ twice.
The colour prompts at the bottom of the screen flash.

3 Push the joystick to the desired colour to store the selected page.
The page is now stored on this colour.

Repeat steps 1 to 3 for the other 3 pages.

Displaying the favourite pages

1 Press ⇨.

2 Push the joystick to the colour on which the desired page is stored.

Make sure you press ⇨, otherwise the normal Fastext facility operates.

Using Fastext

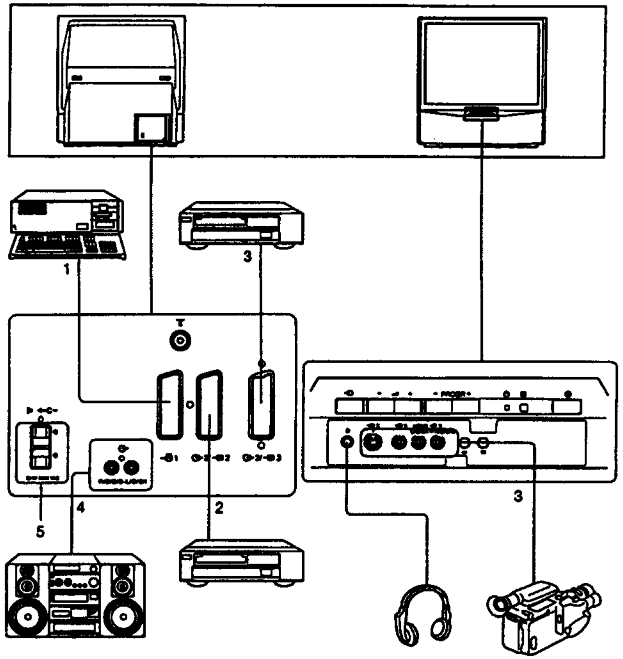
With Fastext you can access pages with one key stroke.
When a Fastext page is broadcast, a colour-coded menu will appear at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue positions on the Remote Commander.
Push the joystick to the colour mark which corresponds to the colour-coded menu. The page will be displayed after a few seconds.

Note
Fastext operation is possible, only when the TV station broadcasts Fastext signals.

Connecting and Operating Optional Equipment

Connecting Optional Equipment

You can connect optional audio-video equipment to this TV such as a VCR, video disc player, and stereo system.



Acceptable input signal		Available output signal
1	Normal audio/video and RGB signal	Video/audio from TV tuner
2	Normal audio/video and S video signal	Video/audio from selected source
3	Normal audio/video and S video signal Normal audio/video and S video signal	No outputs Video/audio from selected source (the same output source as the ⊕-2/⊷2 connector)
4	No inputs	Audio signal
5	Centre speaker input Set "Speaker" on the SOUND CONTROL menu to "Centre in".	No outputs

To connect a VCR using the T terminal
Connect the serial output of the VCR to the serial terminal T of the TV.
We recommend that you tune in the video signal to programme number "0". For details, see "Presetting Channels Manually" on page 10.

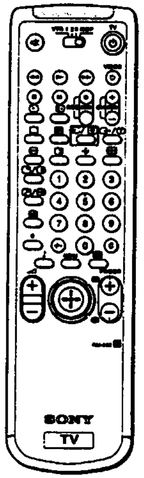
If the picture or the sound is distorted
Move the VCR away from the TV.

About S video inputs (Y/C input)
Video signals can be separated into Y (luminance or brightness) and C (chrominance) signals.
Separating the Y and C signals prevents them from interfering with one another, therefore it improves picture quality (especially luminance).
This TV is equipped with 3 S Video input jacks, through which these separated signals can be input directly.

When connecting a monaural VCR
Connect only the white ⊖ jack to both the TV and VCR.

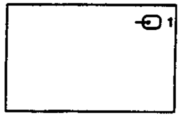
Note
When you connect the equipment to the ⊷3/⊸3/⊖3 connectors on the front panel and ⊕-3/⊷3 connector on the rear panel, turn off the power of the equipment not in use.

Selecting input with PROGR +/– or number buttons
You can preset video input sources to the programme positions so that you can select them with PROGR +/– or number buttons. For details, see "Presetting Channels Manually" on page 10.



Selecting Input and Output

This section explains how to view the video input picture (of the video source connected to your TV), and how to select the output signal using direct access buttons or the menu system.



Selecting input

Press ⊸ repeatedly to select the input source.
The symbol of the selected input source will appear.

To go back to the normal TV picture

Press ▭.

Input modes

Symbol	Input signal
⊸ 1	Audio/video input through the ⊶1 connector
⊶	Audio/RGB input through the ⊶1 connector
⊸ 2	Audio/video input through the ⊕- 2/⊷2 connector
⊷2	Audio/S video input through the ⊕- 2/⊷2 connector
⊸ 3	Audio/video input through ⊸3 and ⊖3 connectors on the front or ⊕- 3/⊷3 connector on the rear
⊷3	Audio/S video input through the ⊷3 connector (4-pin connector) on the front or ⊕- 3/⊷3 connector on the rear

You can also select the input mode using the ⊸ button on the TV.

AV LABEL PRESET

Using AV Label Preset

Using this function you can preset the desired input source (e.g. →□ 1, RGB signal) to the respective AV input (AV 1 →□). In this way, a connected VCR will automatically switch to the RGB signal.

1 Press MENU.

2 Push the joystick to blue or green to select the symbol ▤ on the menu screen. Push to yellow to confirm.

3 Push to blue or green to select "AV Label Preset". Push to yellow.

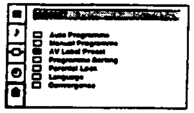
4 Push to blue or green to select the desired input source. Push to yellow to confirm.

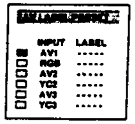
5 Push to blue or green to select a letter or number. Push to yellow (select "-" for a blank).
Select the other four characters in the same way.

6 After selecting all the characters, press the joystick to confirm.

7 Repeat steps 4 to 6 to label other input sources.

8 Press the MENU button to return to the normal TV picture.





INPUT	LABEL
AV1	-----
RGB	-----
AV2	-----
YC2	-----
AV3	-----
YC3	-----

VIDEO CONNECTION

Checking and Selecting the Input and Output Sources Using the Menu

You can display the menu to see which input sources are selected for the TV screen, as well as which output source is selected. You can also select them on the menu display.

1 Press MENU.

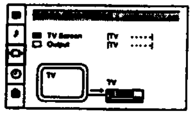
2 Push the joystick to blue or green to select the symbol -□- on the menu screen. Push to yellow to confirm.
The VIDEO CONNECTION menu appears.
You can see which source is selected for the TV and for the output.
If you want to select the input and output on this menu, go on to the next step.

3 Push to blue or green to select "TV Screen" (input source for TV-screen), or "Output" (output source for ⊂- 2/-⊟ 2 and ⊂- 3/-⊟ 3).
Push to yellow to confirm.

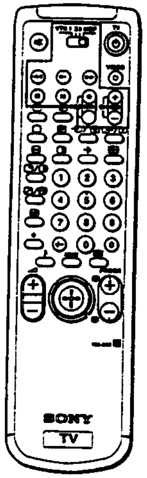
4 Push to red or yellow to select the desired source. Press joystick to store.

5 Repeat steps 3 to 4 to select the source for other inputs or outputs.

6 Press MENU to return to the normal TV picture.



Note
If you select "AUTO" for output, the output source automatically becomes the same as the desired input source.



When recording
When you use the ● (record) button, make sure to press this button and the one to the right of it simultaneously.

Remote Control of Other Sony Equipment

You can use the TV Remote Commander to control most of Sony remote-controlled video equipment: beta, 8 mm and VHS VCRs and video disc players.

Tuning the Remote Commander to the equipment

1 Set the VTR 1/2/3 MDP selector according to the equipment you want to control:

VTR1: Beta VCR
VTR2: 8 mm VCR
VTR3: VHS VCR
MDP: Video disc player

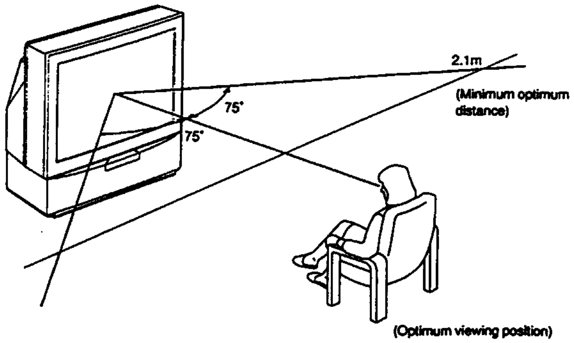
2 Use the buttons indicated in the illustration to operate the additional equipment.
If your video equipment is furnished with a COMMAND MODE selector, set this selector to the same position as the VTR 1/2/3 MDP selector on the TV Remote Commander.
If the equipment does not have a certain function, the corresponding button on the Remote Commander will not operate.

For Your Information

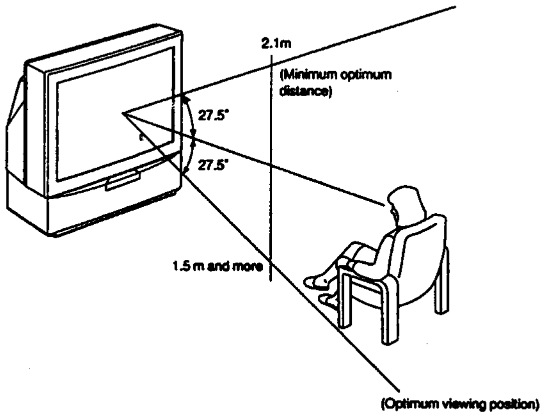
Optimum Viewing Area

For the best picture quality, try to position the projection TV so that you can view the screen from within the areas shown below.

Horizontal viewing area



Vertical viewing area



Troubleshooting

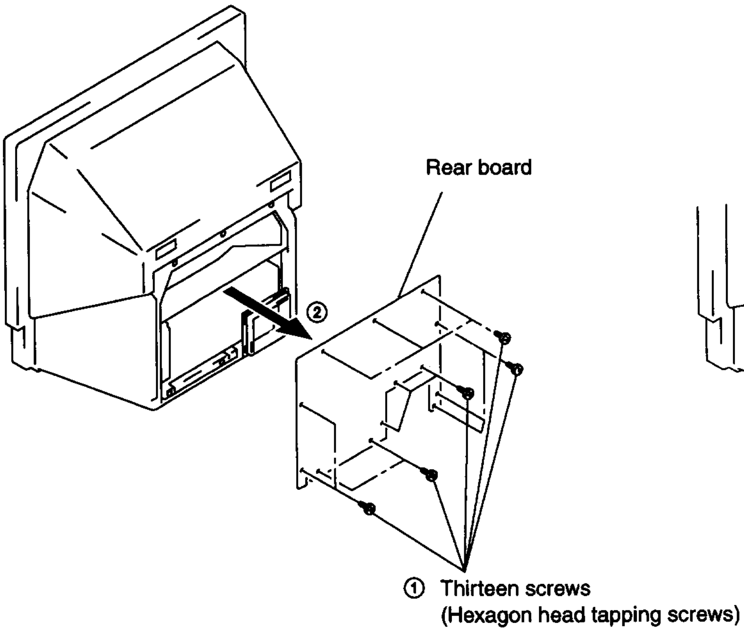
Here are some simple solutions to some problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	• Plug in the TV in. • Press ⦶ on the TV (if ⏻ indicator is on, press ▢ or a programme number on the Remote Commander). • Check the aerial connection. • Check if the selected video source is on. • Turn the TV off for 3 or 4 seconds then turn it on again using ⦶ .
Poor or no picture (screen is dark), but good sound	• Press ● to enter the PICTURE CONTROL menu and adjust the brightness, contrast and colour.
The menu and picture disappear (if contrast and brightness are minimum)	• Press MENU on the Remote Commander or on the front panel of the TV set.
Good picture but no sound	• Press ⊿ +. • Check if " Center in " is selected on the SOUND CONTROL menu. • If 🔇 is displayed on the screen, press 🔇 .
No colour for colour programmes	• Press ● to enter the PICTURE CONTROL menu, select RESET, then press the joystick to confirm.
Remote Commander does not function	• The batteries are weak.

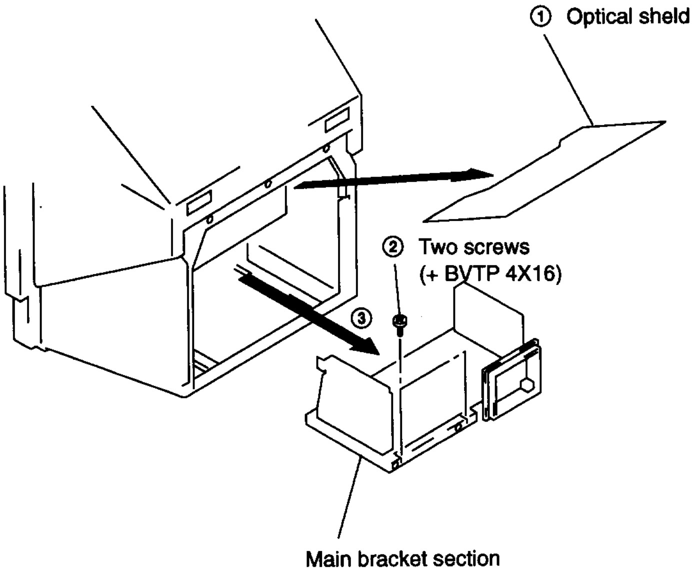
If you continue to have problems, have your TV serviced by qualified personnel. Never open the casing yourself.

SECTION 2
DISASSEMBLY

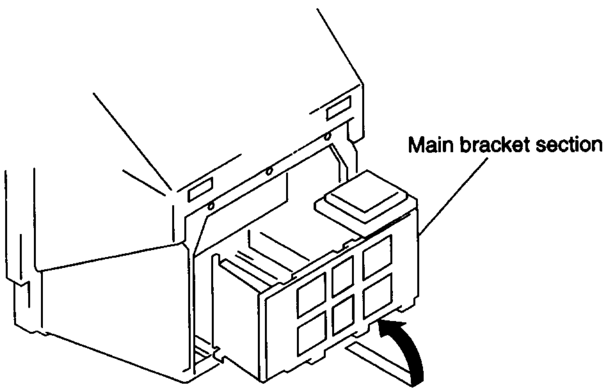
2-1-1. REAR BOARD REMOVAL


Rear board
②
① Thirteen screws
(Hexagon head tapping screws)

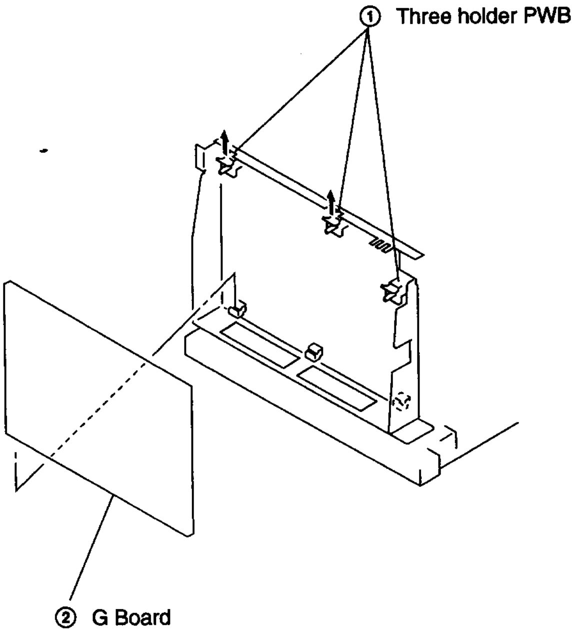
2-1-2. MAIN BRACKET SECTION REMOVAL


① Optical sheld
② Two screws
(+ BVTP 4X16)
③
Main bracket section

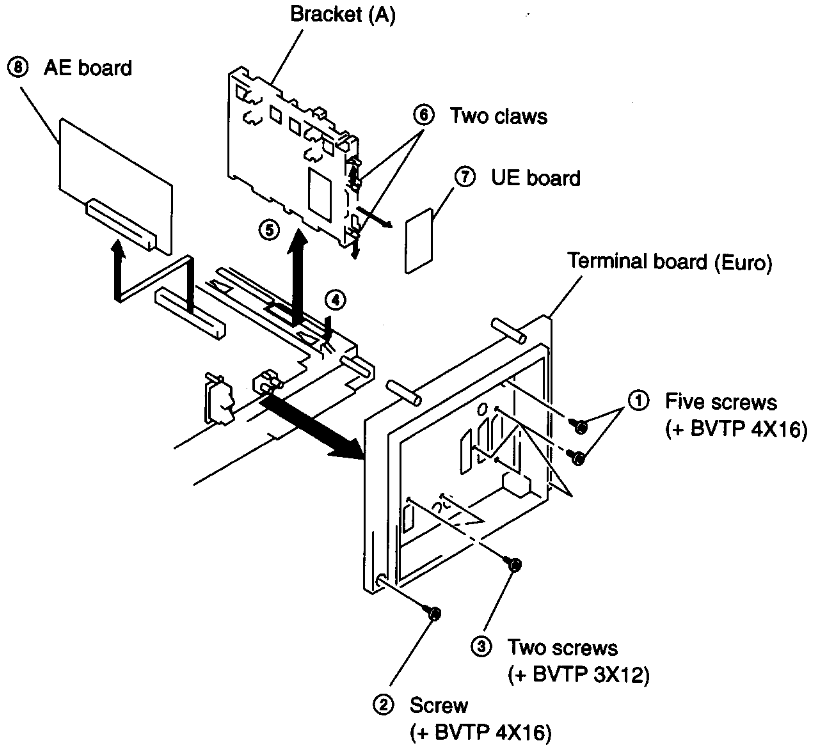
2-1-3. SERVICE POSITION


Main bracket section

2-1-4. G BOARD REMOVAL

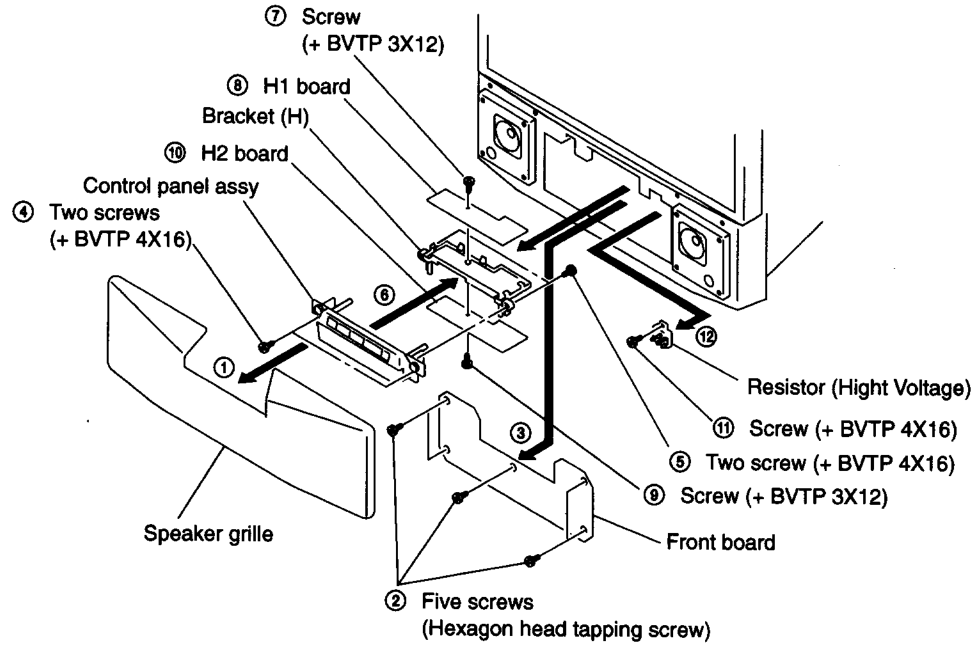

① Three holder PWB
② G Board

2-1-5. AE BOARD AND UE BOARD REMOVAL



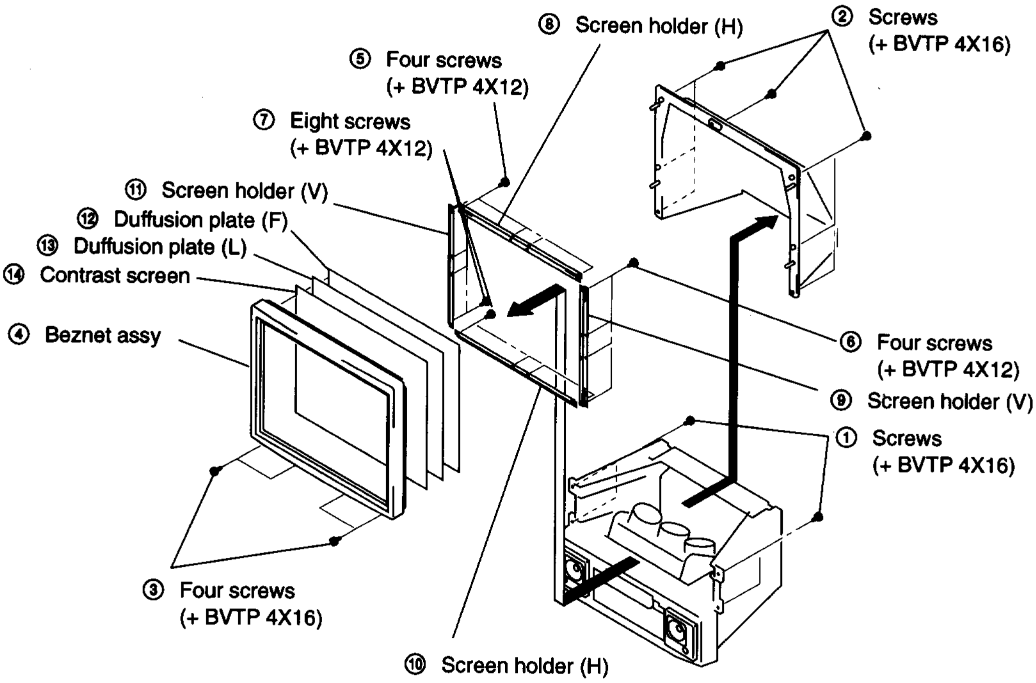
Bracket (A)
⑧ AE board
⑥ Two claws
⑦ UE board
⑤
④
Terminal board (Euro)
① Five screws
(+ BVTP 4X16)
③ Two screws
(+ BVTP 3X12)
② Screw
(+ BVTP 4X16)

2-1-6. H1 BOARD, H2 BOARD AND RESISTOR (HIGHT VOLTAGE) REMOVAL



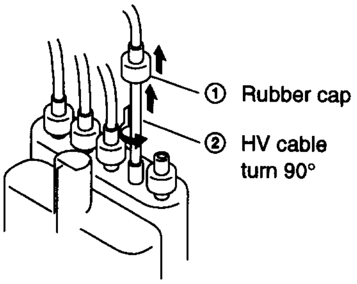
⑦ Screw
(+ BVTP 3X12)
⑧ H1 board
Bracket (H)
⑩ H2 board
Control panel assy
④ Two screws
(+ BVTP 4X16)
⑥
①
③
⑫
Resistor (Hight Voltage)
⑪ Screw (+ BVTP 4X16)
⑤ Two screw (+ BVTP 4X16)
⑨ Screw (+ BVTP 3X12)
Front board
Speaker grille
② Five screws
(Hexagon head tapping screw)

2-1-7. BEZNET SECTION REMOVAL

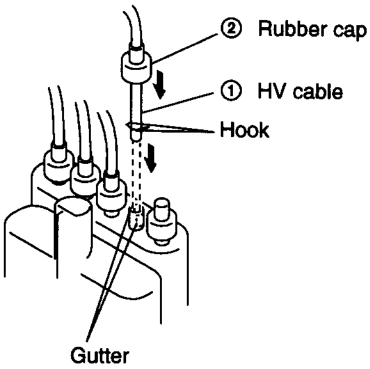

⑧ Screen holder (H)
② Screws (+ BVTP 4X16)
⑤ Four screws (+ BVTP 4X12)
⑦ Eight screws (+ BVTP 4X12)
⑪ Screen holder (V)
⑫ Duffusion plate (F)
⑬ Duffusion plate (L)
⑭ Contrast screen
④ Beznet assy
⑥ Four screws (+ BVTP 4X12)
⑨ Screen holder (V)
① Screws (+ BVTP 4X16)
③ Four screws (+ BVTP 4X16)
⑩ Screen holder (H)

2-1-8. HIGH-VOLTADE CABLE INSTALLATION AND REMOVAL

(1) Remover

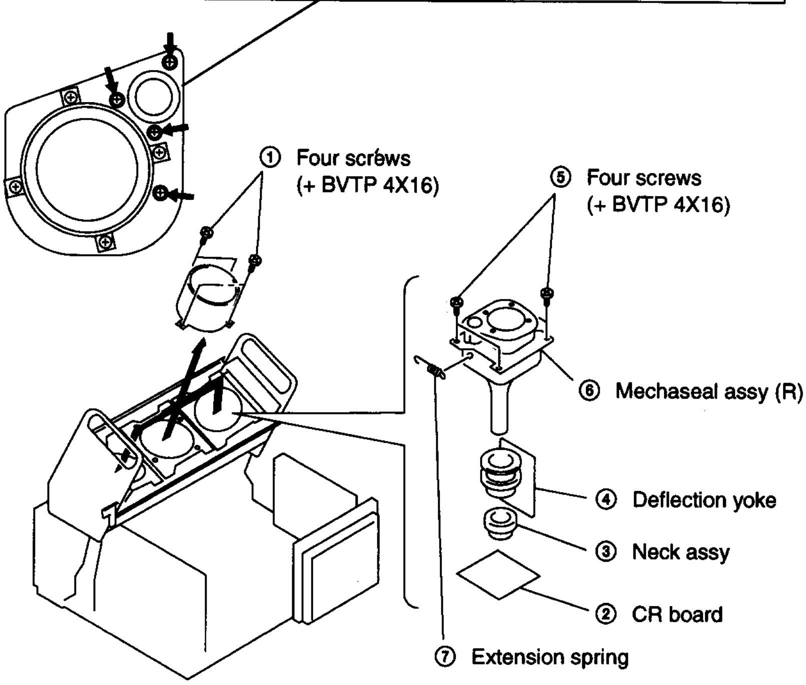

① Rubber cap
② HV cable turn 90°

(2) Installation


② Rubber cap
① HV cable
Hook
Gutter

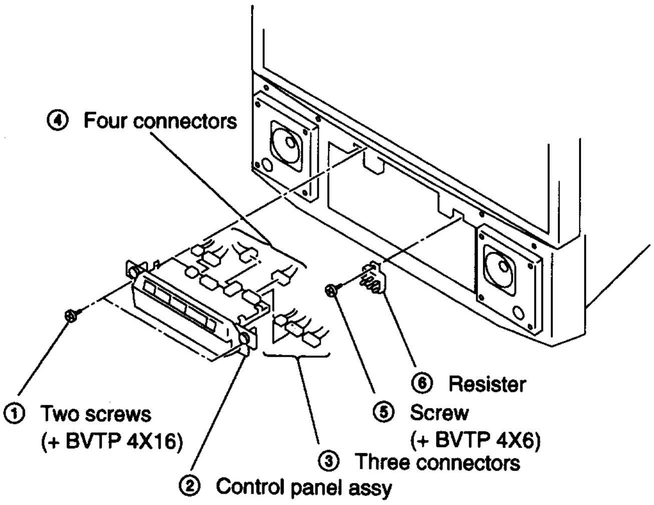
2-1-9. MECHASEL ASSY REMOVAL

Removing the arrow-marked screw is strictly inhibited.
If removed, it may cause liquid spill

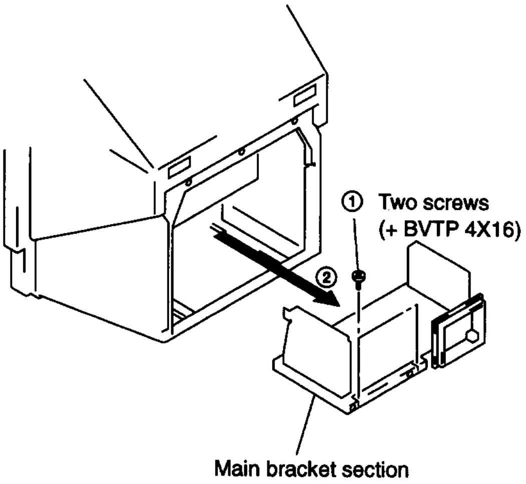

① Four screws (+ BVTP 4X16)
⑤ Four screws (+ BVTP 4X16)
⑥ Mechaseal assy (R)
④ Deflection yoke
③ Neck assy
② CR board
⑦ Extension spring

2-2. CHASSIS BLOCK REMOVAL

(1) H1, H2 BOARDS AND AND RESISTOR REMOVAL

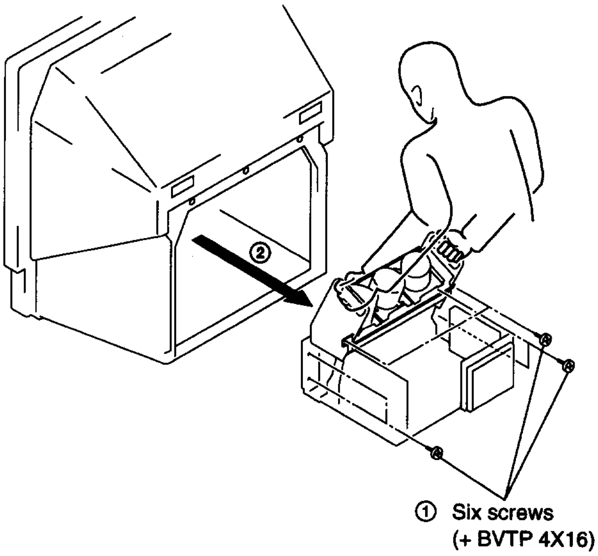

④ Four connectors
⑥ Resister
① Two screws
(+ BVTP 4X16)
⑤ Screw
(+ BVTP 4X6)
③ Three connectors
② Control panel assy

(2) MAIN BRACKET REMOVAL


① Two screws
(+ BVTP 4X16)
②
Main bracket section

※ Pay particular attention to the wires of each PCB when puling out the main bracket.

(3) CHASSIS BLOCK REMOVAL

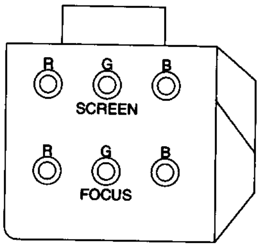

②
① Six screws
(+ BVTP 4X16)

※ Pull out the chassis block by gripping the handles as shown in the diagram.
At this time, pay particular attention to the components removed in (1).

SECTION 3
SET-UP ADJUSTMENTS

3-1. SCREEN VOLTAGE ADJUSTMENT (ROUGH ALIGNMENT)

1. Receive the Monoscope signal.
2. Set 50% BRIGHTNESS and minimum PICTURE.
3. Turn the red VR on the FOCUS block all the way to the left and then gradually turn it to the right until the point where you can see the retrace line.
4. Next gradually turn it to the left to the position where the retrace line disappears.

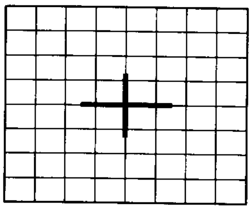


FOCUS block

Fig. 3-1

3-2. FOCUS LENS ADJUSTMENT

1. Loose the lens screw.
2. Set in service mode.
3. Use GH (GSEL) on the service mode menu to shown only the green color.
4. Press the Commander Menu button and select TEST MENU and CONVERGENCE to display the test signal (crosshatch) on the screen.
5. Rotate the green lens and align with the optimal focus point from the test signal.
6. Use GH (GSEL) from the service mode menu to set to green and red.
7. Output the test signal and rotate the red lens to obtain the optimum focus at the point where the red and green spots overlap.
8. Use BH (BSEL) from the service mode menu to set to red and blue.
9. Output the test signal and rotate the blue lens to obtain the optimum focus at the point where the blue and red spots overlap.
10. Tighten the lens screw.



Test signal

Fig. 3-2

3-3. SCREEN (G2) ADJUSTMENT

1. Select VIDEO mode without signals.
2. Connect an oscilloscope to the TP701(KR), TP731(KG) and TP761(KB) of CR board, CG board and CB board.
3. Adjust R, G and B screen voltage to 175 ± 2VDC with screen VR on the focusblock.

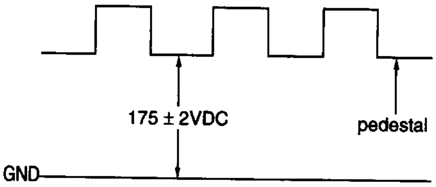


Fig. 3-3

3-4. FOCUS VR ADJUSTMENT

1. Set in service mode.
2. Use GH (GSEL) on the service mode menu to shown only the green color.
3. Press the Commander Menu button (convergence) and output the test signal (crosshach).
4. Rotate the green VR on the FOCUS block and align to obtain the optimal focus point.
5. Use GH (GSEL) from the service mode menu to set to green and red.
6. Output the test signal and rotate the red VR to obtain the optimum focus at the point where the red and green spots overlap.
7. Use BH (BSEL) from the service mode menu to set to red and blue.
8. Output the test signal and rotate the blue VR aligning to obtain the optimum focus at the point where the blue and green spots overlap.

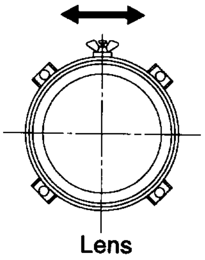


Fig. 3-4

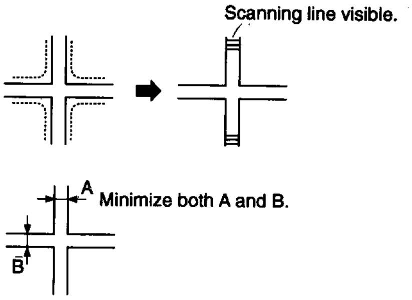


Fig. 3-5

3-5. DEFLECTION YOKE TILT ADJUSTMENT

1. Set to receive the Monoscope signal.
2. Set in service mode.
3. Place the caps on the red and blue lens so that only the green color.
4. Loosen the deflection yoke setscrew and align the tilt of the Deflection Yoke so that the bars at the center of the monoscope pattern are horizontal.
5. After aligning the deflection yoke, fasten it securely to the funnel-shaped portion (neck) of the CRT.
6. The tilt of the deflection yoke for red and Blue is aligned the same as was done for green.

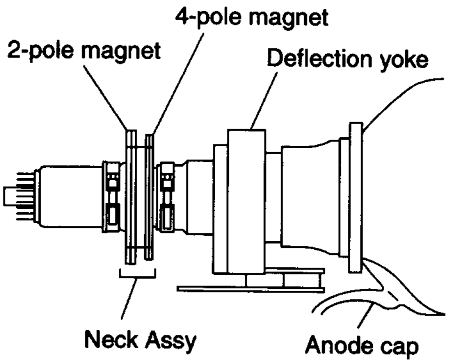


Fig. 3-6

3-6. 2-POLE MAGNET ADJUSTMENT

1. Set in service mode.
2. Set to receive the Dot signal.
3. Place the caps on the red and blue lens so that only the green color is shown.
4. Turn the green VR on the focus block to the right and set to overfocus to enlarge the spot.
5. Now align the 2-Pole Magnet so that the enlarged spot is in the center of the Just Focus spot.
6. Align the green focus VR and set for just (precise) focus.
7. Perform the same alignment for red and blue.

Use the center dot

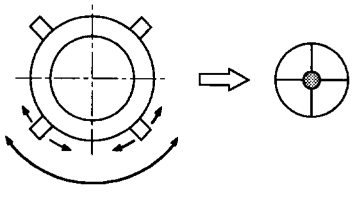


Fig. 3-7

3-7. 4-POLE MAGNET ADJUSTMENT

1. Set in service mode.
2. Set to receive the Dot signal.
3. Place the caps on the red and blue lens so that only the green color is shown.
4. Turn the green VR on the focus block to the left and set to underfocus to enlarge the spot.
5. Now align the 4-Pole Magnet so that the enlarged spot becomes a perfect circle.
6. Perform the same alignment for red and blue.

Use the center dot

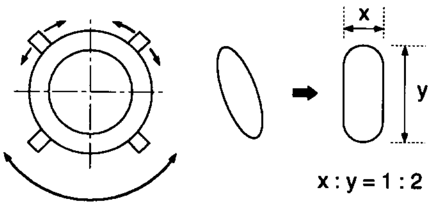


Fig. 3-8

3-8. DEFOCUS ADJUSTMENT (Blue)

1. Receive the Dot signal.
2. Place the caps on the red and green lens so that only the blue color is shown.
3. Rotate the blue focus volume on the focus pack and adjust to obtain best electrical focus.
4. Rotate Blue focus volume of focus pack clocwise, so that diameter of the Dot see Caution.

[How to Blue defocus.]

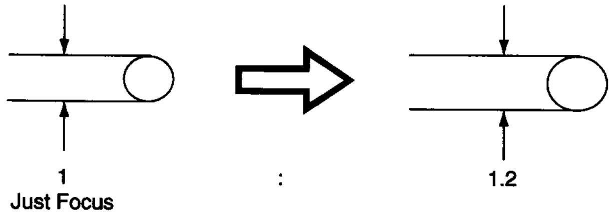


Fig. 3-9

[Change Blue Defocus]

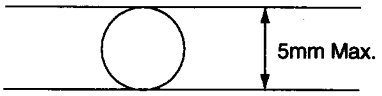


Fig. 3-10

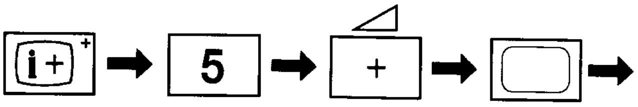
SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can performed with the supplied remote commander RM-862.

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set and enter into standby mode.
2. Press the following sequcnce of buttons on the Remote Commander.

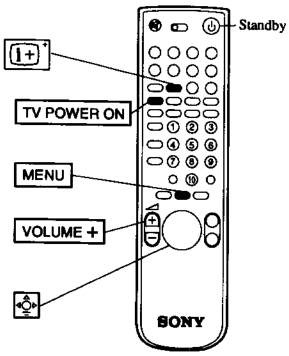


"TT—" will appear in the top right comer of the screen. Other status information wull also be displayed.

3. Press MENU on the commander to obtain the following menu on the screen.

TEST MENU

> picture adjustment
Geometry
Wide
MSP
IC status
Current TV status
Convergence



RM-862

4. Move to the correspondind adjustment using the ◁○▷ button on the commander.
5. Move the button to the right ◁○▷ to enter the selected adjustment.
6. Turn off the power to quit the service mode when adjustments are completed.

PICTURE ADJUSTMENT

AFC mode	2
REF position	2
SCP BGR	1
SCP BGF	1
Trap Fo	0
Sub contrast	Adj
Sub colour	Adj
Sub brightness	Adj
Green drive	Adj
Blue drive	Adj
Green cutoff	Adj
Blue cutoff	Adj
Gamma	0
Pre / overshoot	0
Y delay	3

GEOMETRY ADJUSTMENT

V Size	Adj
V Position	Adj
S Correction	Adj
V Linearity	Adj
H Size	Adj
H Position	Adj
Pin Amp	Adj
Pin Phase	Adj
AFC Bow	Adj
AFC Angle	Adj
EHT V	Adj
EHT H	Adj
Corner Pin	Adj

WIDE

V Aspect	47
V Scroll	31
Upper V Lin	0
Lower V Lin	0
Left Blanking	1
Right Blanking	11

IC STATUS (CXA2076 / CXA2040)

CXA2076

H lock	1
IKR	1
VNG	0
X•RAY	0
Colour system	3
CV1 Sync	0

CXA2040

Sync sep	1
S1 mode pin	01
S2 mode pin	01

TUNER

Tuner status	01101011

CURRENT TV STATUS

Text system	C TEXT / TV TEXT
Dolby	NO / YES
Text language set	WEST / EAST / RUSSIAN
Menu language set	WEST / EAST / RUSSIAN
Destination	B / D / U / K / L / E / A / R
Scart 16 : 9	OFF / ON
RGB priority	OFF / ON
Ageing	OFF / ON
Size	PJ
Colour trap sw	SECAM / ALL
Velocity mod	ON / OFF
AFT STATUS	WINDOW / HIGH / LOW
Lumisponder Mode	OFF

MSP

AGC ON / OFF	ON
Constant gain CDB	1
FM prescale FMP	36
Zwei mono-st WHI	36
Zwei st-mono WLO	18
Zwei mono-bi WMH	36
Zwei bi-mono WLO	18
Time zwei WML	41
Fawct limit	10
Fawct soll init FAW	12
Fawer tol	2
Nicam Err Max CCT	10
Nicam Err Min	0
Nicam Prescale NIP	97
Time Nicam	31
Carrier mute CRM	OFF
Audio clock ACO	HIZ
Scart prescale	25
Scart volume	64
NICAM Prescale I	127
NICAM Prescale L	97
NICAM Prescale BG	97
NICAM Prescale DK	97

4-2. SERVICE LIST

OSD

	Item number	Adjustment Item	Data range	Initial data	Name / Description	Device
OSD	00	CHSW	0, 1	0	HATCH DISPLAY 0 : Disp, Hatch 1 : No Disp, Hatch	
	01	OSDH	1 ~ 32	10	OSD H Position	
	02	OSDV	1 ~ 32	10	OSD V Position	
	03	VMRK	0, 1	0	V SIZE MARKER ON / OFF (cannot write to NVM)	

SFT

	Item number	Adjustment Item	Data range	Initial data	Name / Description	Device
SFT	00	SFTE	0, 1	1	SHIFT ENABLE 0 : Disable 1 : Enable	
	01	SFTF	0, 1	0	SHIFT FAST 0 : Normal 1 : Quick (cannot write to NVM)	

DP

	Item number	Adjustment Item	Data range	Initial data	Name / Description	Device
GH	00	GSEL	0, 1	0	OSD SELECT FOR GH, GV 0 : Green+Red 1 : Green	CXP86213
	01	CENT	−127 ~ +127	0	GREEN H CENTER	
	02	SKEW	−127 ~ +127	0	GREEN H SKEW	
	03	BOW	−127 ~ +127	0	GREEN H BOW	
	04	4 BOW	−127 ~ +127	0	GREEN H 4th BOW	
	05	SIZE	−127 ~ +127	0	GREEN H SIZE	
	06	LIN	−127 ~ +127	0	GREEN H LINEARITY	
	07	M SIZ	−127 ~ +127	0	GREEN H MID SIZE	
	08	M LIN	−127 ~ +127	0	GREEN H MID LINEARITY	
	09	KEY	−127 ~ +127	0	GREEN H KEYSTONE	
	10	SSKW	−127 ~ +127	0	GREEN H SUB SKEW	
	11	M PIN	−127 ~ +127	15	GREEN H MID PINCUSHION	
	12	PIN	−127 ~ +127	−12	GREEN H PINCUSHION	
	13	S BOW	−127 ~ +127	8	GREEN H SUB BOW	
	14	M BOW	−127 ~ +127	0	GREEN H MID BOW	
	15	4PIN	−127 ~ +127	0	GREEN H 4th PINCUSHION	
	16	4 SBOW	−127 ~ +127	0	GREEN H 4th SUB BOW	
GV	00	CENT	−127 ~ +127	0	GREEN V CENTER	
	01	SKEW	−127 ~ +127	0	GREEN V SKEW	
	02	BOW	−127 ~ +127	0	GREEN V BOW	
	03	SIZE	−127 ~ +127	0	GREEN V SIZE	
	04	LIN	−127 ~ +127	0	GREEN V LINEARITY	
	05	M SIZ	−127 ~ +127	0	GREEN V MID SIZE	
	06	M KEY	−127 ~ +127	0	GREEN V MID KEYSTONE	
	07	KEY	−127 ~ +127	0	GREEN V KEYSTONE	
	08	S SKW	−127 ~ +127	0	GREEN V SUB SKEW	
	09	M PIN	−127 ~ +127	0	GREEN V MID PINCUSHION	
	10	PIN	−127 ~ +127	20	GREEN V PINCUSHION	
	11	S BOW	−127 ~ +127	16	GREEN V SUB BOW	
	12	WAVE	−127 ~ +127	0	GREEN V WAVE	
	13	4PIN	−127 ~ +127	25	GREEN V 4th PINCUSHION	

	Item number	Adjustment Item	Data range	Initial data	Name / Description	Device
RH	00	CENT	–95~ +96	0	RED H CENTER	CXP86213
	01	SKEW	–95~ +96	0	RED H SKEW	
	02	BOW	–127 ~ +127	0	RED H BOW	
	03	4BOW	–127 ~ +127	0	RED H 4th BOW	
	04	SIZE	–127 ~ +127	25	RED H SIZE	
	05	LIN	–127 ~ +127	10	RED H LINEARITY	
	06	MSIZ	–127 ~ +127	30	RED H MID SIZE	
	07	MLIN	–127 ~ +127	–30	RED H MID LINEARTIY	
	08	KEY	–127 ~ +127	0	RED H KEYSTONE	
	09	SSKW	–127 ~ +127	0	RED H SUB SKEW	
	10	MPIN	–127 ~ +127	0	RED H MID PINCUSHON	
	11	PIN	–127 ~ +127	–10	RED H PINCUSHON	
	12	SBOW	–127 ~ +127	40	RED H SUB BOW	
	13	MBOW	–127 ~ +127	12	RED H MID BOW	
	14	4PIN	–127 ~ +127	0	RED H 4th PINCUSHON	
	15	4SBOW	–127 ~ +127	0	RED H 4th SUB BOW	
RV	00	CENT	–95~ +96	–10	RED V CENTER	
	01	SKEW	–95~ +96	0	RED V SKEW	
	02	BOW	–127 ~ +127	4	RED V BOW	
	03	SIZE	–127 ~ +127	0	RED V SIZE	
	04	LIN	–127 ~ +127	0	RED V LINEARITY	
	05	MSIZ	–127 ~ +127	0	RED V MID SIZE	
	06	MKEY	–127 ~ +127	10	RED V MID KEYSTONE	
	07	KEY	–127 ~ +127	–10	RED V KEYSTONE	
	08	SSKW	–127 ~ +127	10	RED V SUB SKEW	
	09	MPIN	–127 ~ +127	0	RED V MID PINCUSHON	
	10	PIN	–127 ~ +127	10	RED V PINCUSHON	
	11	SBOW	–127 ~ +127	16	RED V SUB BOW	
	12	WAVE	–127 ~ +127	30	RED V WAVE	
	13	4PIN	–127 ~ +127	10	RED V 4th PINCUSHON	
	14	MWAV	–31 ~ +31	0	MID WAVE	
BH	00	BSEL	0, 1	0	OSD SELECT FOR BH, BV 0 : Blue + Green 1 : Blue + Red	
	01	CENT	–95~ +96	0	BLUE H CENTER	
	02	SKEW	–95~ +96	0	BLUE H SKEW	
	03	BOW	–127 ~ +127	0	BLUE H BOW	
	04	4BOW	–127 ~ +127	0	BLUE H 4th BOW	
	05	SIZE	–127 ~ +127	–25	BLUE H SIZE	
	06	LIN	–127 ~ +127	–10	BLUE H LINEARITY	
	07	MSIZ	–127 ~ +127	30	BLUE H MID SIZE	
	08	MLIN	–127 ~ +127	30	BLUE H MID LINEARTIY	
	09	KEY	–127 ~ +127	0	BLUE H KEYSTONE	
	10	SSKW	–127 ~ +127	0	BLUE H SUB SKEW	
	11	MPIN	–127 ~ +127	0	BLUE H MID PINCUSHON	
	12	PIN	–127 ~ +127	–10	BLUE H PINCUSHON	
	13	SBOW	–127 ~ +127	–40	BLUE H SUB BOW	
	14	MBOW	–127 ~ +127	–16	BLUE H MID BOW	
	15	4PIN	–127 ~ +127	0	BLUE H 4th PINCUSHON	
	16	4SBOW	–127 ~ +127	0	BLUE H 4th SUB BOW	

	Item number	Adjustment Item	Data range	Initial data	Name / Description	Device
BV	00	CENT	–95~ +96	–10	BLUE V CENTER	CXP86213
	01	SKEW	–95~ +96	0	BLUE V SKEW	
	02	BOW	–127 ~ +127	0	BLUE V BOW	
	03	SIZE	–127 ~ +127	0	BLUE V SIZE	
	04	LIN	–127 ~ +127	0	BLUE V LINEARITY	
	05	MSIZ	–127 ~ +127	0	BLUE V MID SIZE	
	06	MKEY	–127 ~ +127	–10	BLUE V MID KEYSTONE	
	07	KEY	–127 ~ +127	10	BLUE V KEYSTONE	
	08	SSKW	–127 ~ +127	–10	BLUE V SUB SKEW	
	09	MPIN	–127 ~ +127	0	BLUE V MID PINCUSHON	
	10	PIN	–127 ~ +127	10	BLUE V PINCUSHON	
	11	SBOW	–127 ~ +127	32	BLUE V SUB BOW	
	12	WAVE	–127 ~ +127	–30	BLUE V WAVE	
	13	4PIN	–127 ~ +127	10	BLUE V 4th PINCUSHON	
	14	MWAV	–31 ~ +31	0	MID WAVE	

ACV

	Item number	Adjustment Item	Data range	Initial data	Name / Description	Device
ACV	00	ART0	1~ 8	6	DATA SAMPLE LENGTH (1 step = 1 microsec.)	
	01	AT1T	0~ 255	18	Data Sampling Start Time	
	02	AT1M	0~ 255	132	from V BLK (50Hz)	
	03	AT1B	0~ 255	240	(1 step = 64 µsec = approx. 1H)	
	04	AH51	0~ 255	18	(1 step = 1 OSD step) OSD H POS 50 (L&R)	
	05	AH52	0~ 255	130	OSD H POS 50 (UP&BOTTOM)	
	06	AV5T	0~ 255	1	(1 step = 2 lines) OSD V POS 50 (UP)	
	07	AV5M	0~ 255	60	OSD V POS 50 (L&R)	
	08	AV5B	0~ 255	130	OSD V POS 50 (BOTTOM)	
	09	AH61	0~ 255	18	(1 step = 1 OSD step) OSD H POS 60 (L&R)	
	10	AH62	0~ 255	130	OSD H POS 60 (BOTTOM)	
	11	AV6T	0~ 255	1	(1 step = 2 lines) OSD V POS 50 (UP)	
	12	AV6M	0~ 255	46	OSD V POS 50 (L&R)	
	13	AV6B	0~ 255	100	OSD V POS 50 (BOTTOM)	
	14	RHCO	–127 ~ +127	0	(8 step = 1 step) RH CENT ADJ OFFSET	
	15	BHCO	–127 ~ +127	0	BH CENT ADJ OFFSET	
	16	RVCO	–127 ~ +127	0	RV CENT ADJ OFFSET	
	17	BVCO	–127 ~ +127	0	BV CENT ADJ OFFSET	
	18	RHSO	–127 ~ +127	0	RH SKEW ADJ OFFSET	
	19	BHSO	–127 ~ +127	0	BH SKEW ADJ OFFSET	
	20	RVSO	–127 ~ +127	0	RV SKEW ADJ OFFSET	
	21	BVSO	–127 ~ +127	0	BV SKEW ADJ OFFSET	
	22	AERR	0~ 255	0	(see Error Code List)	

MSC

	Item number	Adjustment Item	Data range	Initial data	Name / Description	Device
MSC	00	ACTL	0~ 255	0	Lower byte of counter value	
	01	ACTH	0~ 255	0	Higher byte of counter value	

4-3. REGISTRATION (CONVERGENCE) ADJUSTMENT METHOD

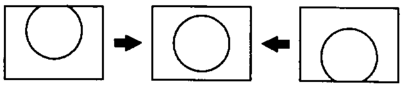
PAL REGISTRATION ADJUSTMENT

1) Receive the PAL SPCB signal.
2) Select Service mode and enter adjustment items for Green signal.

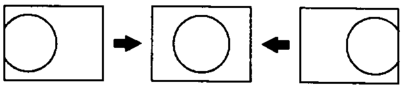
CENTER ADJUSTMENT

1) Adjust GH and GV CENT.

GV CENT



GH CENT

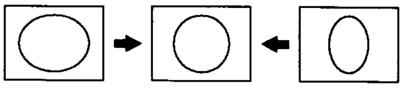


SIZE ADJUSTMENT

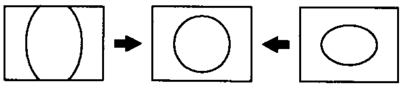
1) Adjust GH SIZE data " 0 " .
2) Adjust VSP H-SIZE.
3) Make GV SIZE data " 00 " .
4) Adjust VSP V-SIZE.
5) Adjust VSP SSCOR .

SPEC : H-SIZE 16.4 +/- 0.15 Sq.
V-SIZE 12.3 +/-0.15Sq.

VSP HSIZE



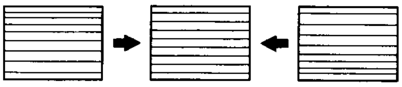
VSP VSIZE



MAIN DEFLECTION ADJUSTMENT

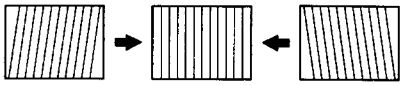
1) Adjust VSP V-Lin.
   Correct linearity of the horizontal top and bottom lines.

VSP VLINE



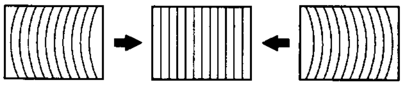
2) Adjust VSP H-SKEW
   Correct the vertical center line to be in parailel with the screen edges and other colors.

VSP H-SKEW



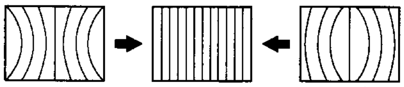
3) Adjust VSP H-BOW.
   Correct linearity of the vertical center line.

VSP H-BOW



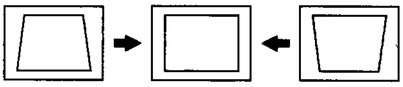
4) Adjust VSP H-PIN.
   Correct the vertical left and right lines and eliminute pincushion-shaped distortion.

VSP H-PIN



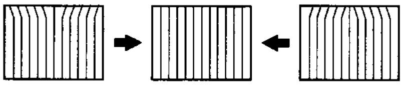
5) Adjust VSP H-Key.
   Correct the vertical left and right lines to be in parallel with each other.

VSP H-KEY



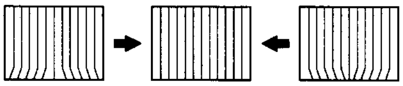
6) Adjust VSP UC. PIN
   Correct the screen top section line bow.

VSP UC. PIN



7) Adjust VSP LC. PIN
   Correct the screen bottom section line bow.

VSP LC. PIN



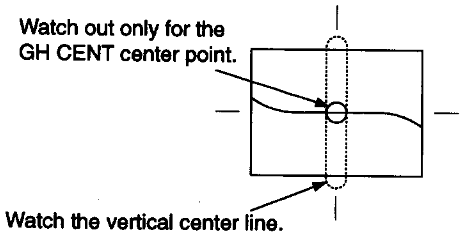
SUB DEFLECTION ADJUSTMENT ITEM

Adjustment O : Yes – : No

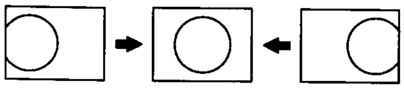
Display	Adjustment item	Adjustment type					
		GH	GV	RH	RV	BH	BV
BSEL	COL SELECT	–	–	–	–	O	–
CENT	CENT	O	O	O	O	O	O
SKEW	SKEW	O	O	O	O	O	O
BOW	BOW	O	O	O	O	O	O
4BOW	4TH BOW	O	–	O	–	O	–
SIZE	SIZE	O	O	O	O	O	O
LIN	LIN	O	O	O	O	O	O
MSIZ	MID SIZE	O	O	O	O	O	O
MLIN	MID LIN	O	O	O	–	O	–
MKEY	MID KEY	–	O	–	O	–	O
KEY	KEY	O	O	O	O	O	O
SSKW	SUB SKEW	O	O	O	O	O	O
MPIN	MID PIN	O	O	O	O	O	O
PIN	PIN	O	O	O	O	O	O
SBOW	SUB BOW	O	O	O	O	O	O
WAVE	WAVE	–	O	–	O	–	O
MBOW	MID BOW	O	–	O	–	O	–
4PIN	4TH PIN	O	O	O	O	O	O
4SBOW	4TH SUB BOW	O	–	O	–	O	–

VERTICAL LINE ADJUSTMENT

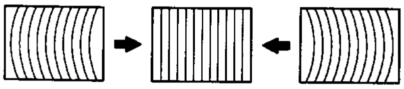
1. Carefully watching out for the GH CENT screen centre section, adjust GH CENT, GH BOW, GH SKEW.
2. GH 4th Bow adjustment. Correct the corner distortion which could not be adjusted with GH BOW.


Watch out only for the GH CENT center point.
Watch the vertical center line.

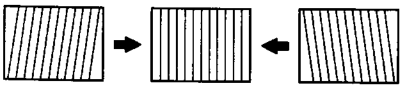
GH CENT



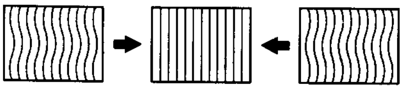
GH BOW



GH SKEW

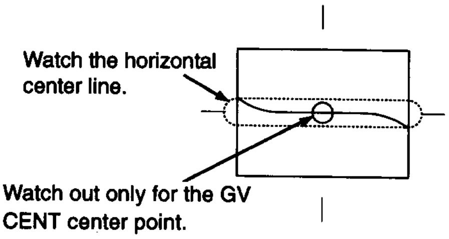


GH 4BOW

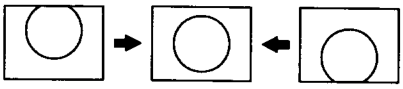


HORIZONTAL LINE ADJUSTMENT

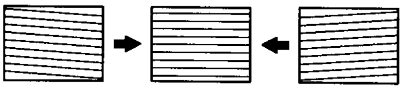
1. Finely adjust the centre position of the vertical line at the centre of the screen with GV CENT.
2. Using GV SKEW and GV BOW, correct the tilt and bow of the horizontal line at the centre of the screen.


Watch the horizontal center line.
Watch out only for the GV CENT center point.

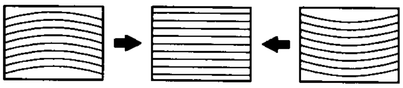
GV CENT



GV SKEW

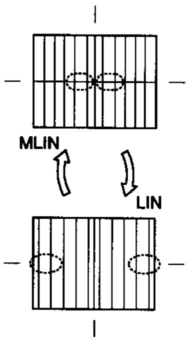


GV BOW



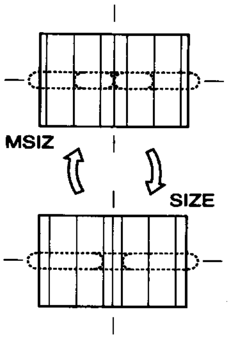
SIZE AND LINEARITY ADJUSTMENT

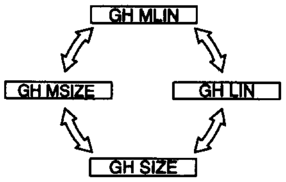
1. Balance the sizes at both sides of the centre section of the screen with GH MLIN.
2. Balance the sizes on both end sections of the screen with GH LIN.
3. While tracking, adjust with GH MLIN and GH LIN so that the sizes of the horizontal line at the centre of the screen are symmetrical left and right.



HORIZONTAL SIZE ADJUSTMENT

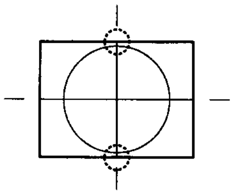
1. Adjust with GH MSIZE, so that the sizes of both edges and centre are equal.
2. Adjust with GH SIZE, so that the horizontal sizes of both edges and centre are equal.
3. While tracking adjust GH MSIZE and GH SIZE so that the space intervals for the horizontal section of the screen are equal.
4. Adjust again if M LIN is changed after GH MSIZE and GH SIZE are complete.




GH MLIN
GH MSIZE
GH LIN
GH SIZE

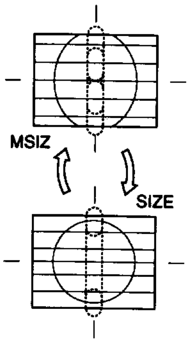
GREEN VERTICAL LINEARITY ADJUSTMENT

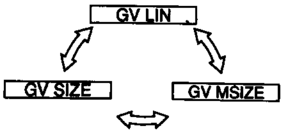
1. Adjust GV LIN so that the vertical lines at the top and bottom of the screen are symmetrical.



GREEN VERTICAL SIZE ADJUSTMENT

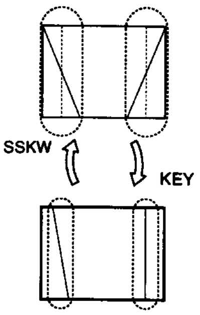
1. Adjust GV MSIZE so that the sizes at the top and bottom and centre are equal.
2. Set the vertical size to correct specification.
3. While tracking adjust GV MSIZE and GV SIZE so that the space intervals for the vertical line of the screen are equal, also the vertical size should be within space.
4. Adjust again if GV L IN has been altered after completing the above adjustments.





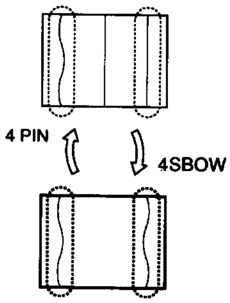
GREEN HORIZONTAL TRAPEZOIDAL DISTORTION ADJUSTMENT

1. Adjust GH SSKW so that the tilt of the vertical lines at both edges of the screen are symmetrical left and right.
2. Adjust GH KEY so that there is no tilt in the vertical lines at both edges of the screen.
3. While tracking adjust GH KEY and GH SSKW.



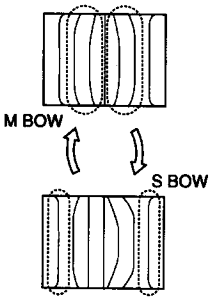
GREEN HORIZONTAL QUATERNARY ADJUSTMENT

1. Adjust GH 4PIN, to correct the 4th order distortion.
2. Adjust GH 4SBO to balance and correct the 4th order distortion at both edges of the screen.
3. While tracking adjust GH 4PIN and GH 4SBOW.



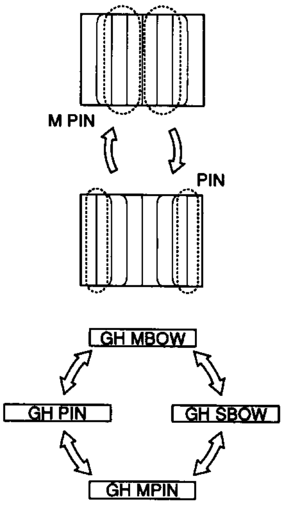
GREEN HORIZONTAL ASYMMETRICAL PIN DISTORTION ADJUSTMENT

1. Adjust GH MBOW, so that the pin asymmetry at both sides of the centre section are symmetrical left and right.
2. Adjust GH SBOW so that the bow at both edges of the screen is symmetrical left and right.
3. While tracking adjust GH MBOW and GH SBOW so that the bow of vertical lines over the entire screen is symmetrical.



GREEN HORIZONTAL SYMMETRICAL PIN DISTORTION ADJUSTMENT

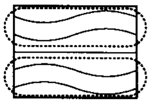
1. Adjust GH MPIN to correct pin distorton at both edges of the centre section.
2. Use GH PIN to correct pin distortion at both edges of the screen.
3. While tracking adjust GH MPIN and GH PIN so that the PIN of vertical lines on the entire screen have no bowing.
4. If there is asymmetrical distortion after adjustments, re-adjust GH MBOW and GH SBOW while tracking.



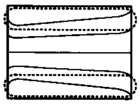
GREEN VERTICAL WAVE (3RD-ORDER) DISTORTION ADJUSTMENT

1. Check the screen at the top & bottom, and look for any 2nd or 3rd order waveform distortion of horizontal lines. Correct with GV WAVE.
2. While tracking adjust GV WAVE and GV KEY, if here are any KEY distortion.

GV WAVE



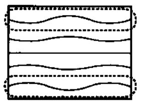
GV KEY



GREEN VERTICAL 4TH ORDER DISTORTION ADJUSTMENT

1. By using GV 4 PIN, 4th-Order distortion of the horizontal lines at the top & bottom can be corrected.
   Since there is no 4SBO for vertical correction, there will be a slight imbalnace, but adjust the registration to eleiminate any distortion.

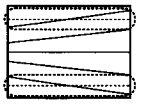
GV 4PIN

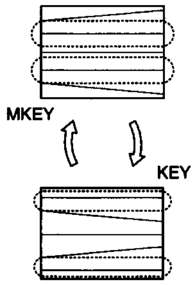


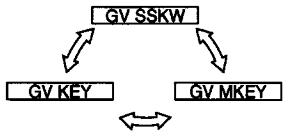
GREEN VERTICAL TRAPEZOIDAL DISTORTION ADJUSTMENT

1. Adjust GV SSKW so that the tilt of the horizontal lines at the top and bottom of the screen are symmetrical.
2. Adjust GV MKEY so that there is no tilt for the middle section.
3. Adjust GV KEY so that there is no tilt at the top and bottom of the screen.
4. While tracking adjust GV MKEY and GV KEY, so that there is no tilt over the entire screen.
5. If the tilt is unbalanced after GV MKEY and GV KEY have been adjusted, readjust GV SSKW.

GV SSKW



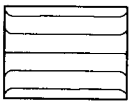




GREEN VERTICAL ASYMMETRICAL PIN DISTORTION (2ND-ORDER DISTORTION) ADJUSTMENT

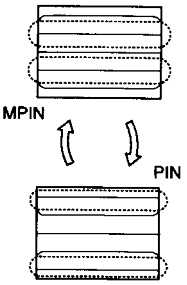
1. Correct the asymmetrical pin distortion at the top and bottom of the screen with GV SBOW.

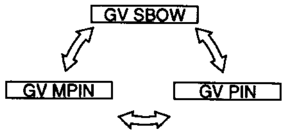
GV SBOW



GREEN VERTICAL ASYMMETRICAL PIN DISTORTION ADJUSTMENT

1. Using GV MPIN adjust the pin distortion at both edges of the screen and at the centre.
2. Using GV PIN, adjust, so that the horizontal lines at the top & bottom of the screen are straight lines.
3. Adjust GV MPIN & GV PIN so that there is no curve in the horizontal lines on the entire screen.
4. After adjusting the items above, using tracking with GV SBOW. GV MPIN, and GV PIN to correct the entire screen.





GREEN AND RED REGISTRATION ADJUSTMENT

1. Receive a PAL cross-hatch signal.
2. Adjust so that the red lines lay on the green lines.
   Adjust, using the same procedure as the GREEN SUB adjustment outline above.

Note : Main registration correction should not be while adjusting Red adjustment.
BEWARE : Not to change Green Sub Items It' s easily done by mistake.

GREEN AND BLUE ADJUSTMENT

1. Adjust so that the blue and green lines are on top of each other.

Note : Main registration correction should not be while adjusting Blue adjustment.
BEWARE : Not to change Green & Red Sub Items.
It' s easily done by mistake.

REGISTRATION DATA WHITE

After Finish all PAL registration adjustments, write PAL registration data by pressing form the appropriate buttons.

DATA WRITE
Press MUTE +0

REGISTRATION COPY DATA FROM 4:3 TO 16:9

1. Press MENU on the commander set to 16:9 mode.
2. To copy the data from 4:3 mode to 16:9 mode, press 2 and 0 on the remote commander.

DATA COPY
Press 2 + 0 to copy data.
If you press " 2 ", their are appears " COPY " to display.

REGISTER ADJUSTMENT FOR 16:9 MODE

Adjust Registration of 16:9 mode using same method as 4:3 mode

* Press " DISPLAY " + " 0 " to copy data from PAL to NTSC. If you press " DISPLAY ", then it appears " WRT5060 " to display.

DATA COPY FROM PAL TO NTSC

Copy PAL data to NTSC data by pressing " DISPLAY " and " 0 "

* Make sure input signal is PAL. If input signal is NTSC and do this process, NTSC data are copied to PAL data!

4-4. AGC ADJUSTMENT

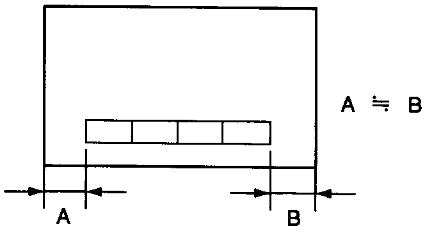
1. Receive an off-air signal.
2. Adjust the AGC VR (IF 1001) so that there is no snow noise and cross-modulation.

4-5. WHITE BALANCE ADJUSTMENT

1. Receive the monoscope signal and adjust the picture quality with the menu.
2. Adjust service mode S-BRIGHT so that the signal 10 IRE section barely glows.
3. Receive the all-white pattern signal.
4. Adjust the white balance with service mode G-CUTOFF and B-CUTOFF.
5. Adjust service mode S-BRIGHT so that the signal 100 IRE section barely glows.
6. Adjust the white balance with service mode G-DRIVE and B-DRIVE.
7. Repeatedly adjust the white balance for the minimum and maximum picture settings.

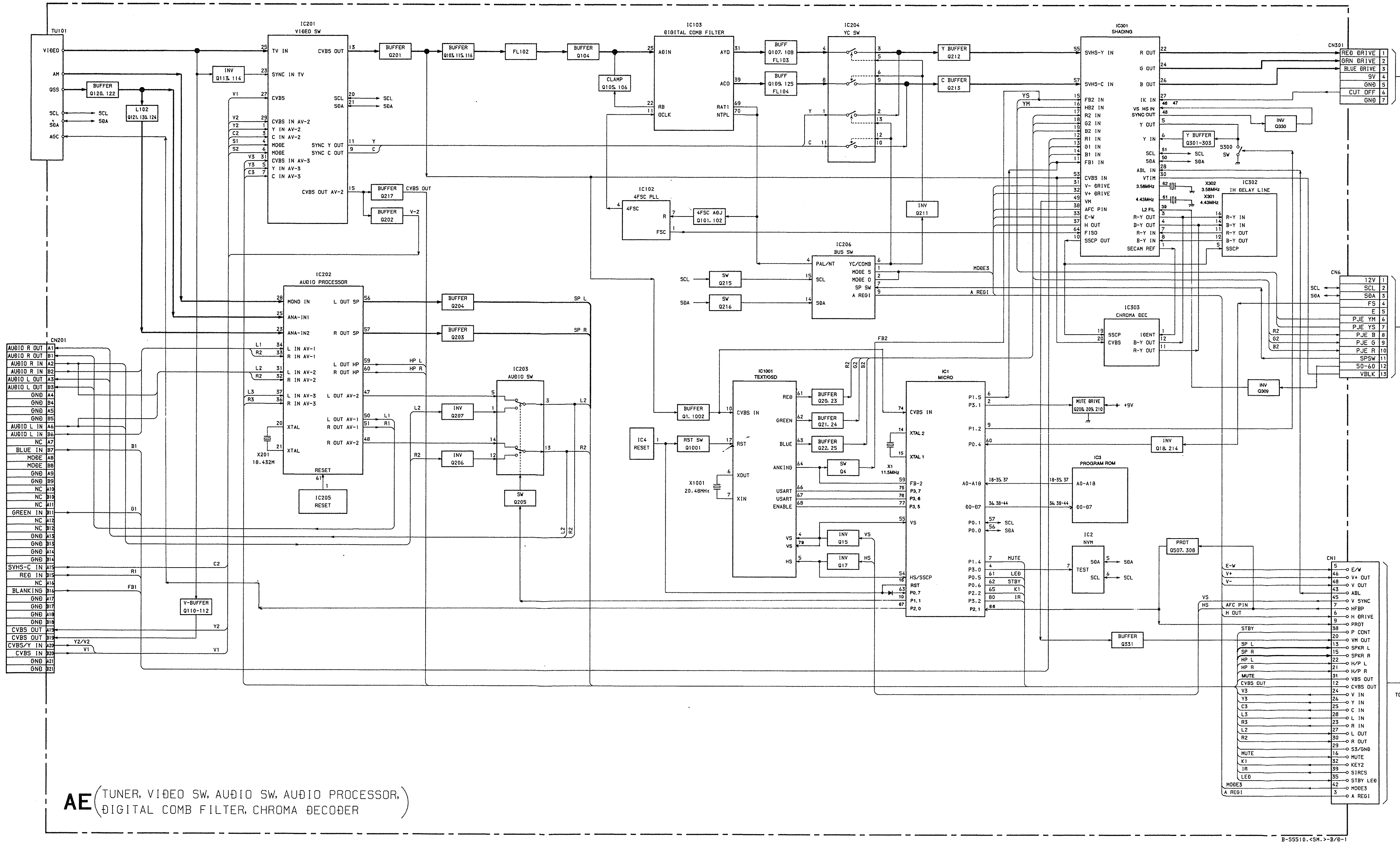
4-6. TEXT POSITION ADJUSTMENT

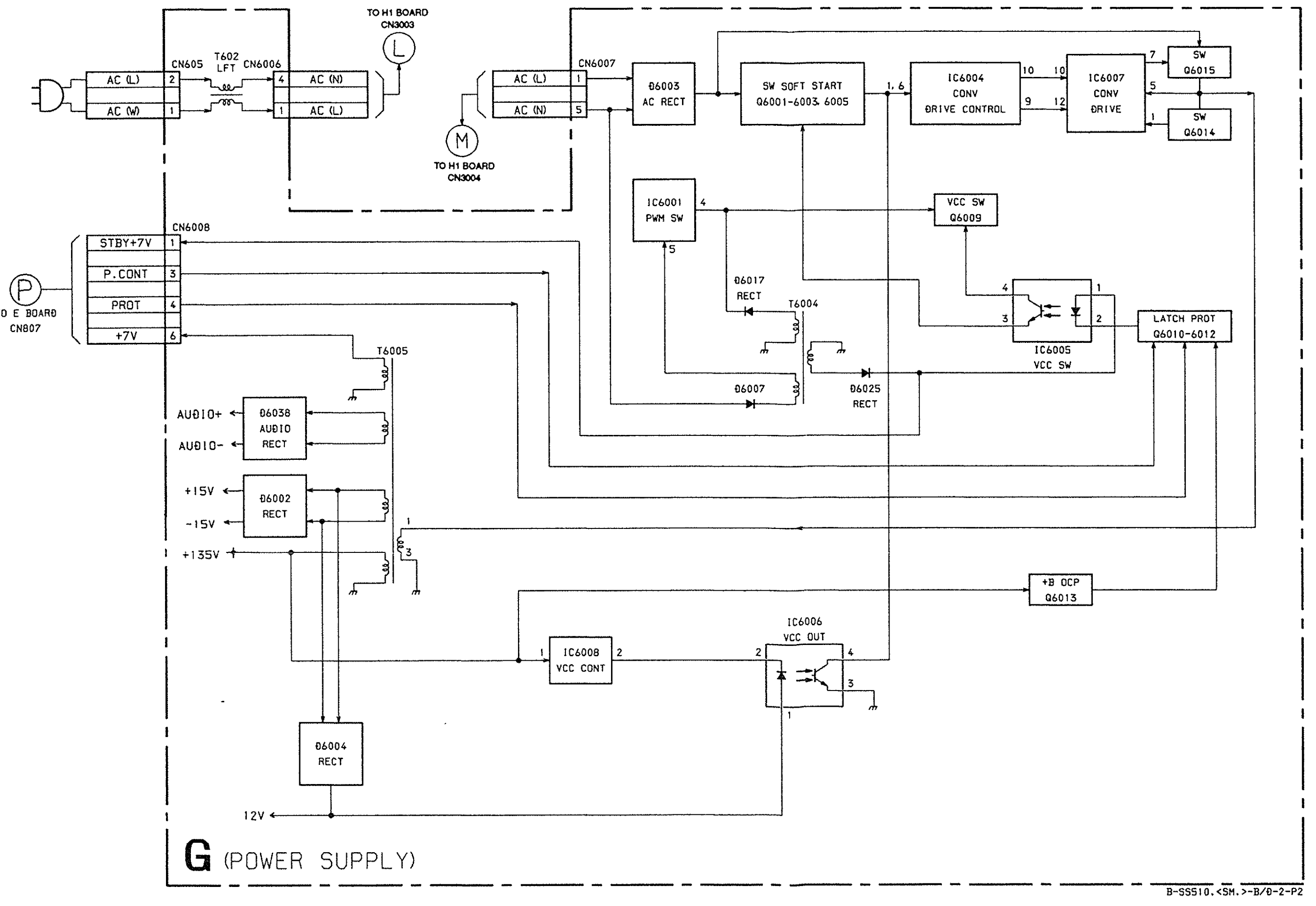
1. Receive RF signal with text.
2. Press TT74 (Text H position adjustment) of Test commander.
3. Adjust H Position of Text.

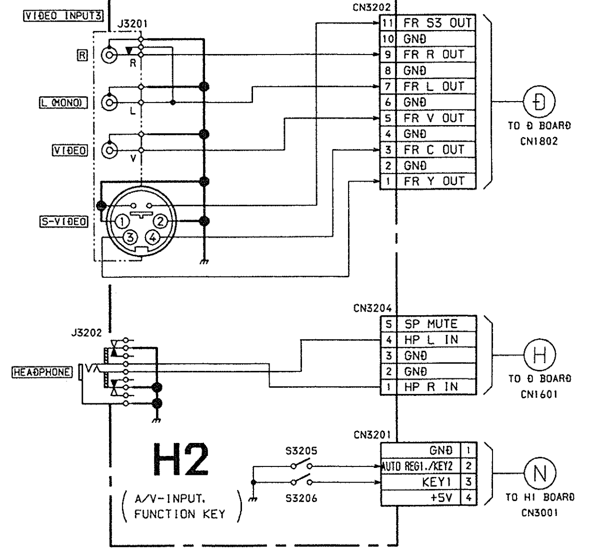


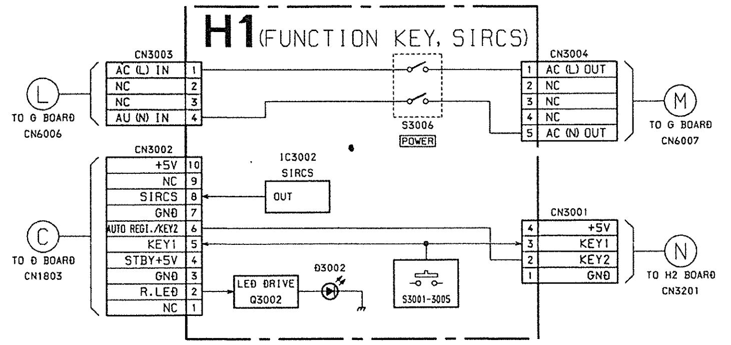
SECTION 5
DIAGRAM

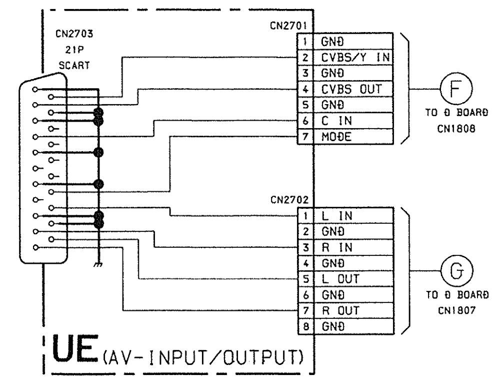
5-1. BLOCK DIAGRAM (1)


TU101
VIDEO
AM
QSS
SCL
SDA
AGC
BUFFER Q120, 122
L102 Q121, 130, 124
INV Q113, 114
IC201 VIDEO SW
TV IN
SYNC IN TV
CVBS
CVBS IN AV-2
Y IN AV-2
C IN AV-2
MODE
MODE
CVBS IN AV-3
Y IN AV-3
C IN AV-3
CVBS OUT
SCL
SDA
SYNC Y OUT
SYNC C OUT
CVBS OUT AV-2
BUFFER Q201
BUFFER Q103, 115, 116
FL102
BUFFER Q104
CLAMP Q105, 106
BUFFER Q217
CVBS OUT
BUFFER Q202
V-2
IC103 DIGITAL COMB FILTER
ADIN
AYO
ACO
RB
OCLK
RAT1
NTPL
BUFF Q107, 108 FL103
BUFF Q109, 125 FL104
IC204 YC SW
Y BUFFER Q212
C BUFFER Q213
IC102 4FSC PLL
4FSC
R
FSC
4FSC ADJ Q101, 102
INV Q211
IC206 BUS SW
PAL/NT
SCL
SDA
YC/COMB
MODE S
MODE O
SP SW
A REGI
SW Q215
SW Q216
MODE3
A REGI
IC301 SHADING
SVHS-Y IN
SVHS-C IN
FB2 IN
HB2 IN
R2 IN
G2 IN
B2 IN
R1 IN
G1 IN
B1 IN
FB1 IN
CVBS IN
V- DRIVE
V+ DRIVE
VM
AFC PIN
E-W
H OUT
FISO
SSCP OUT
R OUT
G OUT
B OUT
IK IN
VS HS IN SYNC OUT
Y OUT
Y IN
SCL
SDA
ABL IN
VTIM
3.58MHz
4.43MHz
L2 FIL
R-Y OUT
B-Y OUT
R-Y IN
B-Y IN
SECAM REF
YS
YM
Y BUFFER Q301-303
S300 SW
INV Q330
X302 3.58MHz
X301 4.43MHz
IC302 IH DELAY LINE
R-Y IN
B-Y IN
R-Y OUT
B-Y OUT
SSCP
CN301
RED DRIVE
GRN DRIVE
BLUE DRIVE
9V
GND
CUT OFF
GND
TO CR BOARD CN703
CN6
12V
SCL
SDA
FS
E
PJE YM
PJE YS
PJE B
PJE G
PJE R
SPSW
50-60
VBLK
TO D BOARD CN1702
IC303 CHROMA DEC
SSCP
CVBS
IDENT
B-Y OUT
R-Y OUT
INV Q309
IC202 AUDIO PROCESSOR
MONO IN
ANA-IN1
ANA-IN2
L IN AV-1
R IN AV-1
L IN AV-2
R IN AV-2
L IN AV-3
R IN AV-3
XTAL
XTAL
X201 18.432M
RESET
L OUT SP
R OUT SP
L OUT HP
R OUT HP
L OUT AV-2
L OUT AV-1
R OUT AV-1
R OUT AV-2
IC205 RESET
BUFFER Q204
BUFFER Q203
SP L
SP R
HP L
HP R
IC203 AUDIO SW
INV Q207
INV Q206
SW Q205
CN201
AUDIO R OUT A1
AUDIO R OUT B1
AUDIO R IN A2
AUDIO R IN B2
AUDIO L OUT A3
AUDIO L OUT B3
GND A4
GND B4
GND A5
GND B5
AUDIO L IN A6
AUDIO L IN B6
NC A7
BLUE IN B7
MODE A8
MODE B8
GND A9
GND B9
NC A10
NC B10
NC A11
GREEN IN B11
NC A12
NC B12
GND A13
GND B13
GND A14
GND B14
SVHS-C IN A15
RED IN B15
NC A16
BLANKING B16
GND A17
GND B17
GND A18
GND B18
CVBS OUT A19
CVBS OUT B19
CVBS/Y IN A20
CVBS IN B20
GND A21
GND B21
V-BUFFER Q110-112
IC4 RESET
BUFFER Q1, 1002
RST SW Q1001
X1001 20.48MHz
IC1001 TEXT/OSD
CVBS IN
RST
XOUT
XIN
RED
GREEN
BLUE
ANKING
USART
USART
ENABLE
VS
VS
HS
BUFFER Q20, 23
BUFFER Q21, 24
BUFFER Q22, 25
SW Q4
INV Q15
INV Q17
IC1 MICRO
CVBS IN
XTAL 2
XTAL 1
X1 11.5MHz
FB-2
P3.7
P3.6
P3.5
VS
HS/SSCP
RST
P0.7
P1.1
P2.0
P1.5
P3.1
P1.2
P0.4
A0-A18
D0-D7
P0.1
P0.0
P1.4
P3.0
P0.5
P0.6
P2.2
P3.2
P2.1
MUTE
LED
STBY
K1
IR
MUTE DRIVE Q208, 209, 210
+9V
INV Q18, 214
IC3 PROGRAM ROM
A0-A18
D0-D7
IC2 NVM
TEST
SDA
SCL
PROT Q507, 308
BUFFER Q331
CN1
E/W
V+ OUT
V OUT
ABL
V SYNC
HFBP
H DRIVE
PROT
P CONT
VM OUT
SPKR L
SPKR R
H/P L
H/P R
VBS OUT
CVBS OUT
V IN
Y IN
C IN
L IN
R IN
L OUT
R OUT
S3/GND
MUTE
KEY2
SIRCS
STBY LED
MODE3
A REGI
TO D BOARD CN1801
AE (TUNER, VIDEO SW, AUDIO SW, AUDIO PROCESSOR, DIGITAL COMB FILTER, CHROMA DECODER)
B-SS510.<SM.>-B/D-1

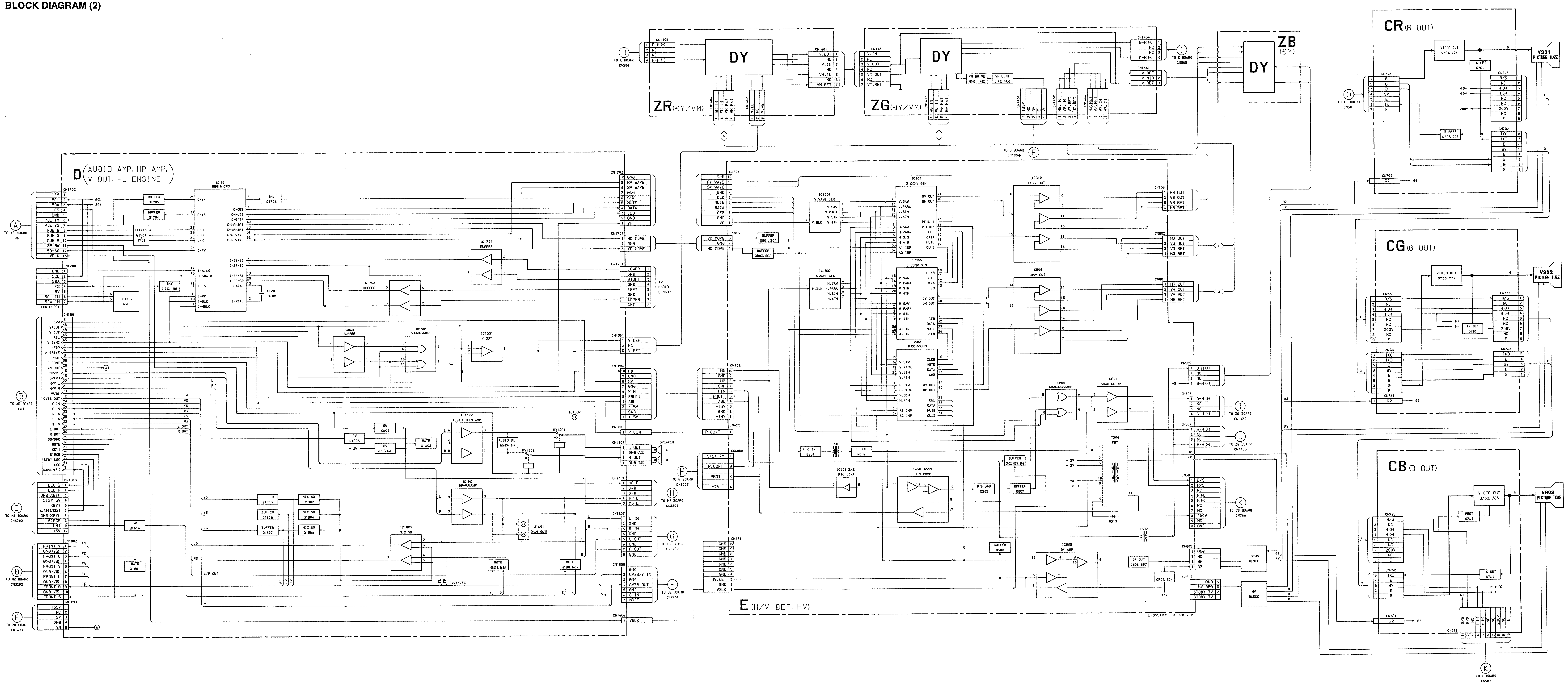

CN605
T602 LFT
CN6006
AC (L)
AC (N)
AC (N)
AC (L)
TO H1 BOARD CN3003
TO H1 BOARD CN3004
CN6007
AC (L)
AC (N)
D6003 AC RECT
SW SOFT START Q6001-6003, 6005
IC6004 CONV DRIVE CONTROL
IC6007 CONV DRIVE
SW Q6015
SW Q6014
IC6001 PWM SW
VCC SW Q6009
D6017 RECT
T6004
D6007
D6025 RECT
IC6005 VCC SW
LATCH PROT Q6010-6012
CN6008
STBY+7V
P.CONT
PROT
+7V
TO E BOARD CN807
T6005
AUDIO+
AUDIO-
D6038 AUDIO RECT
+15V
-15V
D6002 RECT
+135V
+B OCP Q6013
IC6008 VCC CONT
IC6006 VCC OUT
D6004 RECT
12V
G (POWER SUPPLY)
B-SS510.<SM.>-B/D-2-P2


VIDEO INPUT3
J3201
R
L (MONO)
VIDEO
S-VIDEO
CN3202
FR S3 OUT
GND
FR R OUT
GND
FR L OUT
GND
FR V OUT
GND
FR C OUT
GND
FR Y OUT
TO D BOARD CN1802
J3202
HEADPHONE
CN3204
SP MUTE
HP L IN
GND
GND
HP R IN
TO D BOARD CN1601
H2
(A/V-INPUT, FUNCTION KEY)
S3205
S3206
CN3201
GND
AUTO REGI./KEY2
KEY1
+5V
TO H1 BOARD CN3001


H1 (FUNCTION KEY, SIRCS)
CN3003
AC (L) IN
NC
NC
AU (N) IN
TO G BOARD CN6006
S3006
POWER
CN3004
AC (L) OUT
NC
NC
NC
AC (N) OUT
TO G BOARD CN6007
CN3002
+5V
NC
SIRCS
GND
AUTO REGI./KEY2
KEY1
STBY+5V
GND
R.LED
NC
TO D BOARD CN1803
IC3002 SIRCS
OUT
LED DRIVE Q3002
D3002
S3001-3005
CN3001
+5V
KEY1
KEY2
GND
TO H2 BOARD CN3201

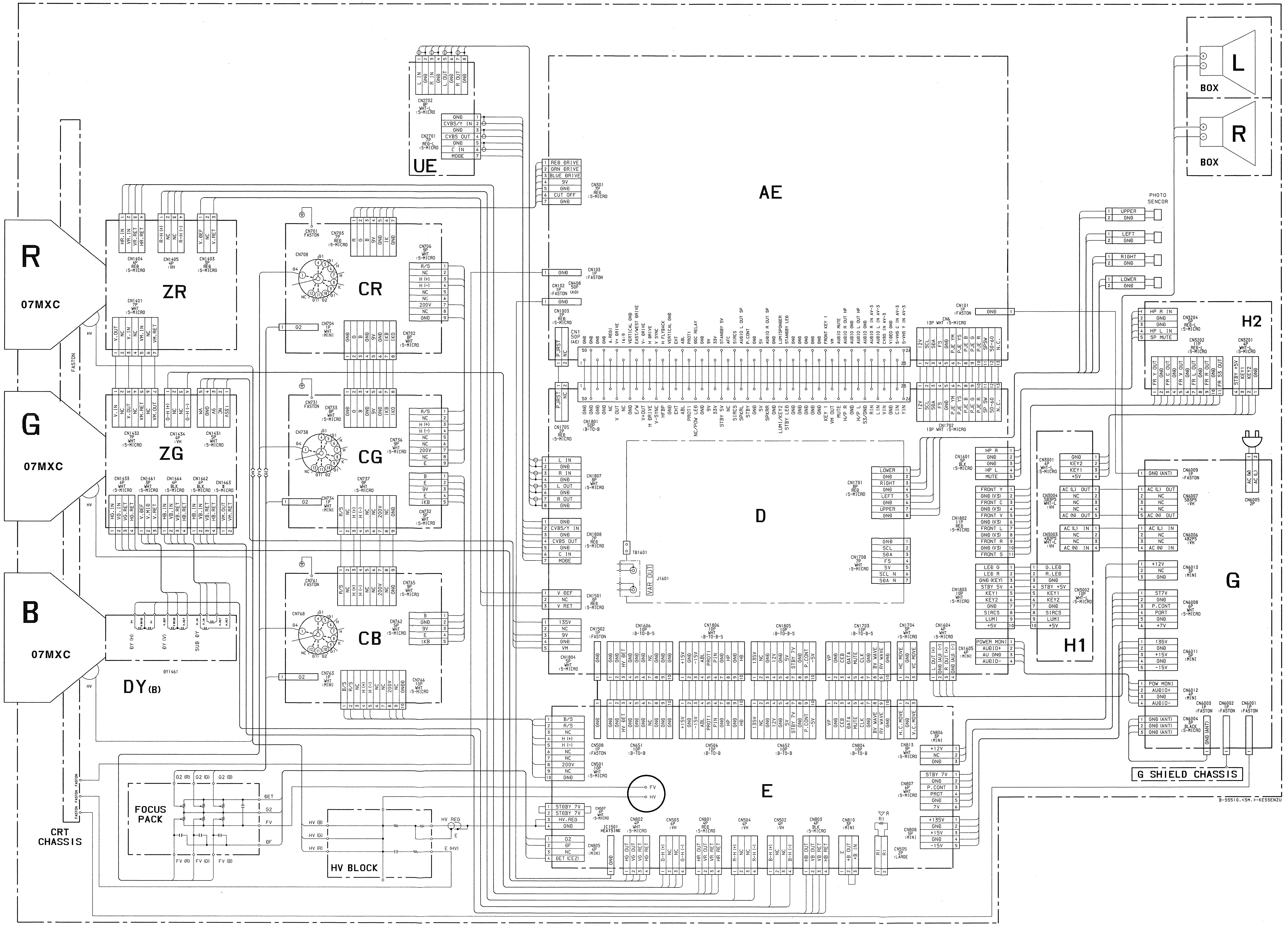

CN2703 21P SCART
CN2701
GND
CVBS/Y IN
GND
CVBS OUT
GND
C IN
MODE
TO D BOARD CN1808
CN2702
L IN
GND
R IN
GND
L OUT
GND
R OUT
GND
TO D BOARD CN1807
UE (AV-INPUT/OUTPUT)

BLOCK DIAGRAM (2)

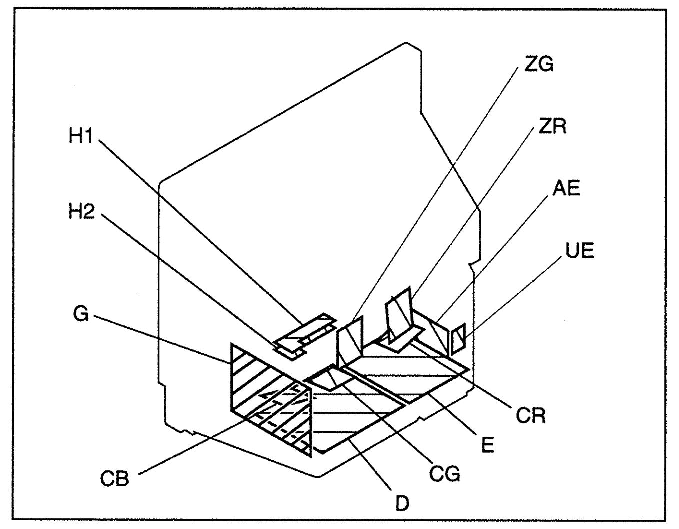


ZR (DY/VM)
DY
ZG (DY/VM)
DY
ZB (DY)
DY
CR (R OUT)
V901 PICTURE TUBE
CG (G OUT)
V902 PICTURE TUBE
CB (B OUT)
V903 PICTURE TUBE
D (AUDIO AMP, HP AMP, V OUT, PJ ENGINE)
IC1701 REGI MICRO
IC1702 NVM
IC1703 BUFFER
IC1704 BUFFER
IC1501 V OUT
IC1502 AUDIO MAIN AMP
IC1503 HP/AMP
IC1805 MIXING
SPEAKER
E (H/V-DEF. HV)
IC804 B CONV GEN
IC806 G CONV GEN
IC808 R CONV GEN
IC1801 V.WAVE GEN
IC1802 H.WAVE GEN
IC810 CONV OUT
IC809 CONV OUT
IC803 SHADING COMP
IC811 SHADING AMP
IC501 REG COMP
IC805 DF AMP
T504 FBT
FOCUS BLOCK
HV BLOCK
VIDEO OUT
IK DET
BUFFER
TO AE BOARD
TO HI BOARD
TO HZ BOARD
TO ZG BOARD
TO E BOARD
TO CB BOARD
TO UE BOARD
TO D BOARD
TO PHOTO SENSOR

5-2. FRAME SCHEMATIC DIAGRAM


R
07MXC
G
07MXC
B
07MXC
ZR
ZG
DY(B)
CR
CG
CB
UE
AE
D
E
H1
H2
G
L
BOX
R
BOX
PHOTO SENCOR
UPPER
LEFT
RIGHT
LOWER
FOCUS PACK
HV BLOCK
CRT CHASSIS
G SHIELD CHASSIS
FASTON
HV
FV
VAR OUT
J1601
TB1601
CN1404
CN1405
CN1403
CN1401
CN1432
CN1434
CN1431
CN1433
CN1461
CN1464
CN1462
CN1463
DY1461
CN701
CN703
CN706
CN708
CN702
CN704
CN731
CN733
CN738
CN736
CN737
CN734
CN732
CN761
CN763
CN765
CN768
CN762
CN766
CN2702
CN2701
CN301
CN103
CN102
CN408
CN1003
CN1
CN1801
CN1705
CN101
CN1702
CN1807
CN1808
CN1501
CN1804
CN1502
CN1606
CN1805
CN1703
CN1704
CN1604
CN1605
CN1601
CN1802
CN1803
CN1701
CN1708
CN3001
CN3004
CN3003
CN3002
CN3204
CN3202
CN3201
CN6009
CN6007
CN6006
CN6013
CN6008
CN6011
CN6012
CN6003
CN6002
CN6001
CN6004
CN6005
CN508
CN501
CN507
CN805
CN802
CN503
CN801
CN504
CN502
CN803
CN810
CN806
CN813
CN807
CN808
CN505
CN651
CN506
CN652
CN804
IC1501 HEATSINK
R1
B-SS510.<SM.>-KESSENZU

5-3. CIRCUIT BOARDS LOCATION


ZG
ZR
AE
UE
H1
H2
G
CB
CG
CR
E
D

5-4. PRINTED WRING BOARDS AND SCHEMATIC DIAGRAMS

Note:

- Capacitors without voltage indication are all 50V.
  All capacitors are in µF unless otherwise noted.
- All resistors are in ohms.
  kΩ=1000Ω, MΩ=1000kΩ
- Indication of resistance, which dose not have one for rating electrical power, is as follows.

Pitch : 5mm
Rating electrical power : $^1/_4$ W (CHIP: $^1/_{10}$ W)

- : nonflammable resistor.
- : fusible resistor.
- △ : internal component.
- ☐ : panel designation and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- As to the voltage volue shown by the semiconductors on the Shematic Diagram, see the another list
- Readings are taken with a color-bar signal input.
  no mark : PAL/common
  < > : SECAM
  ( ) : NTSC3.58
- Readings are taken with a 10MΩ digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
  ∗ : Measurement impossibillity.
- V : B+line.
- V : B-line.
  (Actual measured value may be different).
- ⇨ : signal path.
- Circled numbers are waveform references.

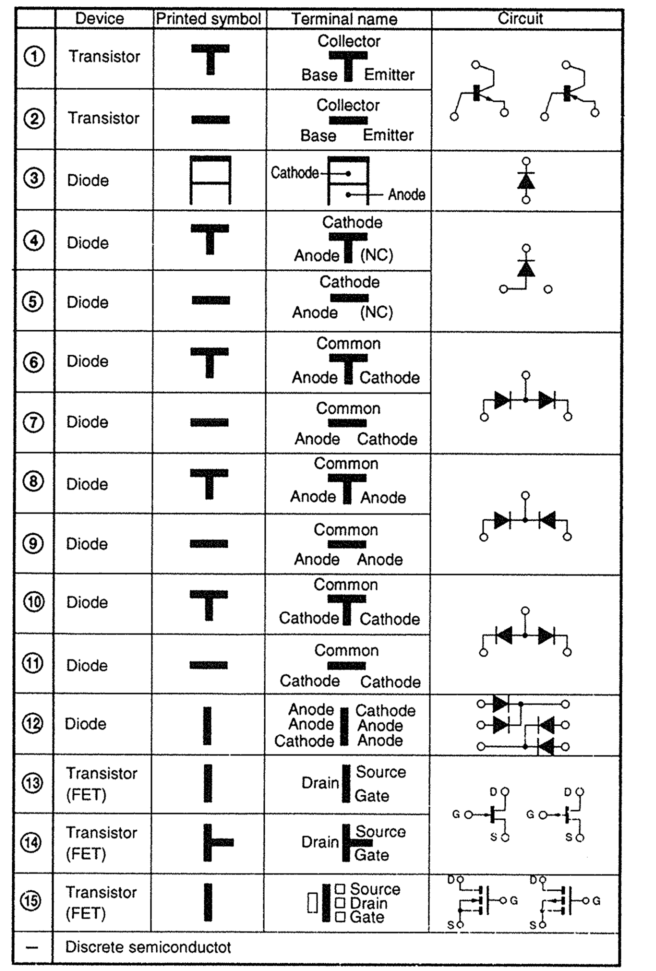
Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés per un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Terminal name of semiconductors in silk screen printed circuit (∗)

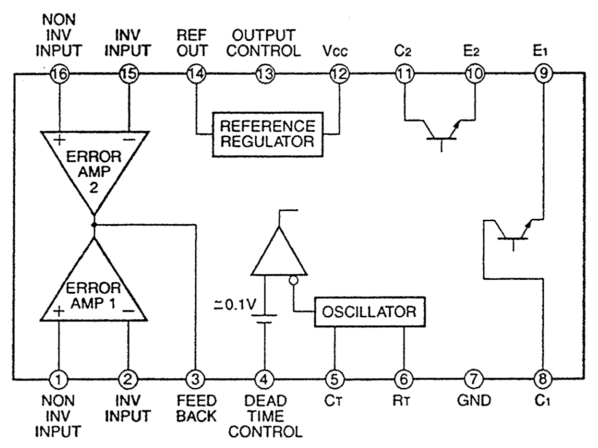


	Device	Printed symbol	Terminal name	Circuit
①	Transistor	T	Collector Base Emitter	
②	Transistor	▬	Collector Base Emitter	
③	Diode		Cathode Anode	
④	Diode	T	Cathode Anode (NC)	
⑤	Diode	▬	Cathode Anode (NC)	
⑥	Diode	T	Common Anode Cathode	
⑦	Diode	▬	Common Anode Cathode	
⑧	Diode	T	Common Anode Anode	
⑨	Diode	▬	Common Anode Anode	
⑩	Diode	T	Common Cathode Cathode	
⑪	Diode	▬	Common Cathode Cathode	
⑫	Diode	▮	Anode Cathode Anode Anode Cathode Anode	
⑬	Transistor (FET)	▮	Drain Source Gate	D G S
⑭	Transistor (FET)	┣	Drain Source Gate	
⑮	Transistor (FET)	▮	☐ Source ☐ Drain ☐ Gate	D G S
—	Discrete semiconductot			

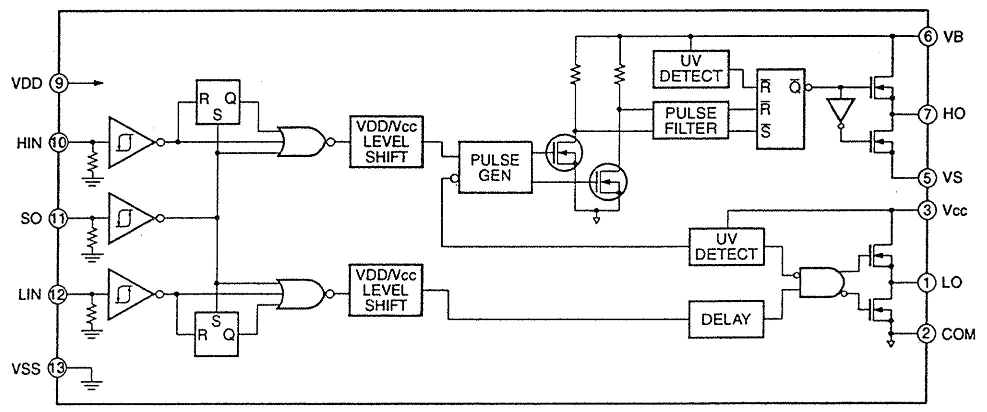
(Chip semiconductors that are not actually used are included.)

Ver.1.5

G BOARD : IC6004 IR3M02


NON INV INPUT
INV INPUT
REF OUT
OUTPUT CONTROL
Vcc
C2
E2
E1
16
15
14
13
12
11
10
9
REFERENCE REGULATOR
ERROR AMP 2
ERROR AMP 1
≒0.1V
OSCILLATOR
1
2
3
4
5
6
7
8
NON INV INPUT
INV INPUT
FEED BACK
DEAD TIME CONTROL
CT
RT
GND
C1

G BOARD : IC6007 IR2112


VDD 9
HIN 10
SO 11
LIN 12
VSS 13
R Q S
VDD/Vcc LEVEL SHIFT
PULSE GEN
UV DETECT
PULSE FILTER
R R S Q
VDD/Vcc LEVEL SHIFT
UV DETECT
DELAY
R Q S
6 VB
7 HO
5 VS
3 Vcc
1 LO
2 COM

G BOARD
IC VOLTAGE LIST

REF.	NO.	VOL.
● IC6001	1	GND
	2	GND
	3	GND
	4	5.9
	5	286.0
	8	GND
● IC6004	1	3.9
	2	4.8
	4	GND
	5	1.7
	6	3.9
	7	GND
	8	14.1
	9	5.8
	10	6.4
	11	14.4
	12	14.5
	13	5.3
	14	5.3
	15	5.3
	16	GND
IC6005	1	7.0
	2	5.8
	● 3	13.5
	● 4	13.8
IC6006	1	14.0
	2	13.0
	● 3	GND
	● 4	3.0
● IC6007	1	6.2
	2	GND
	3	14.5
	5	147.0
	6	159.0
	7	150.0
	9	14.5
	10	6.4
	11	GND
	12	5.8
	13	GND
IC6008	1	134.5
	2	12.5
	3	GND

·All voltage are in V.
·Pin numbers which are not described are not used.

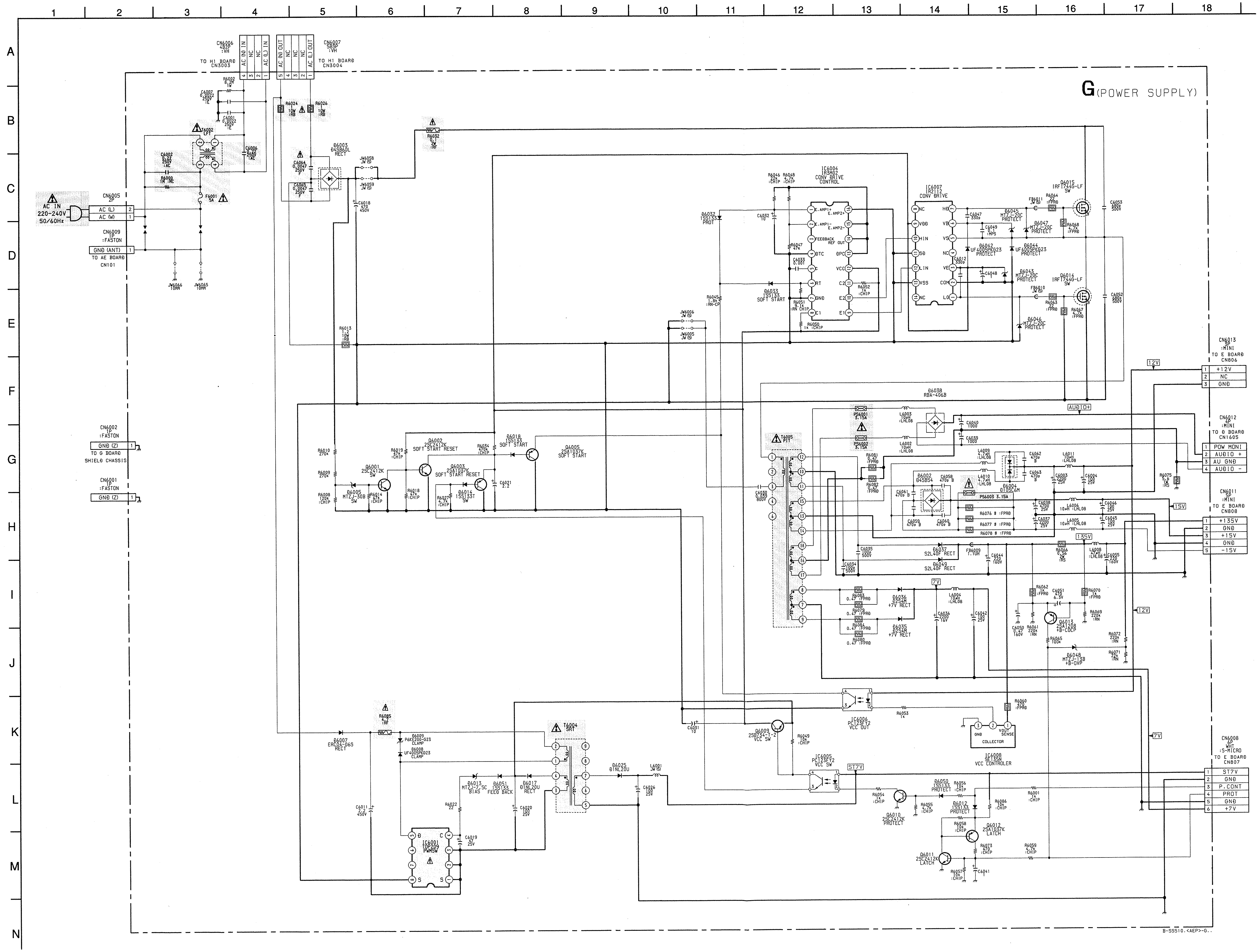
● : The figurs in the parentheses are the voltage difference from primary side ground.

G BOARD TRANSISTOR VOLTAGE LIST

REF.		VOL.
● Q6001	B	0.8
	E	GND
	C	0
● Q6002	B	0
	E	GND
	C	13.8
● Q6003	B	*
	E	13.8
	C	GND
● Q6005	B	5.1
	E	3.0
	C	GND
● Q6009	B	13.8
	E	14.5
	C	14.5
Q6010	B	0.7
	E	GND
	C	0.1
Q6011	B	0
	E	GND
	C	7.0
Q6012	B	7.0
	E	7.0
	C	0
Q6013	B	134.8
	E	135.1
	C	0
● Q6014	G	6.1
	D	147.0
	S	GND
● Q6015	G	150.0
	D	292.0
	S	147.0

All voltages are in V.

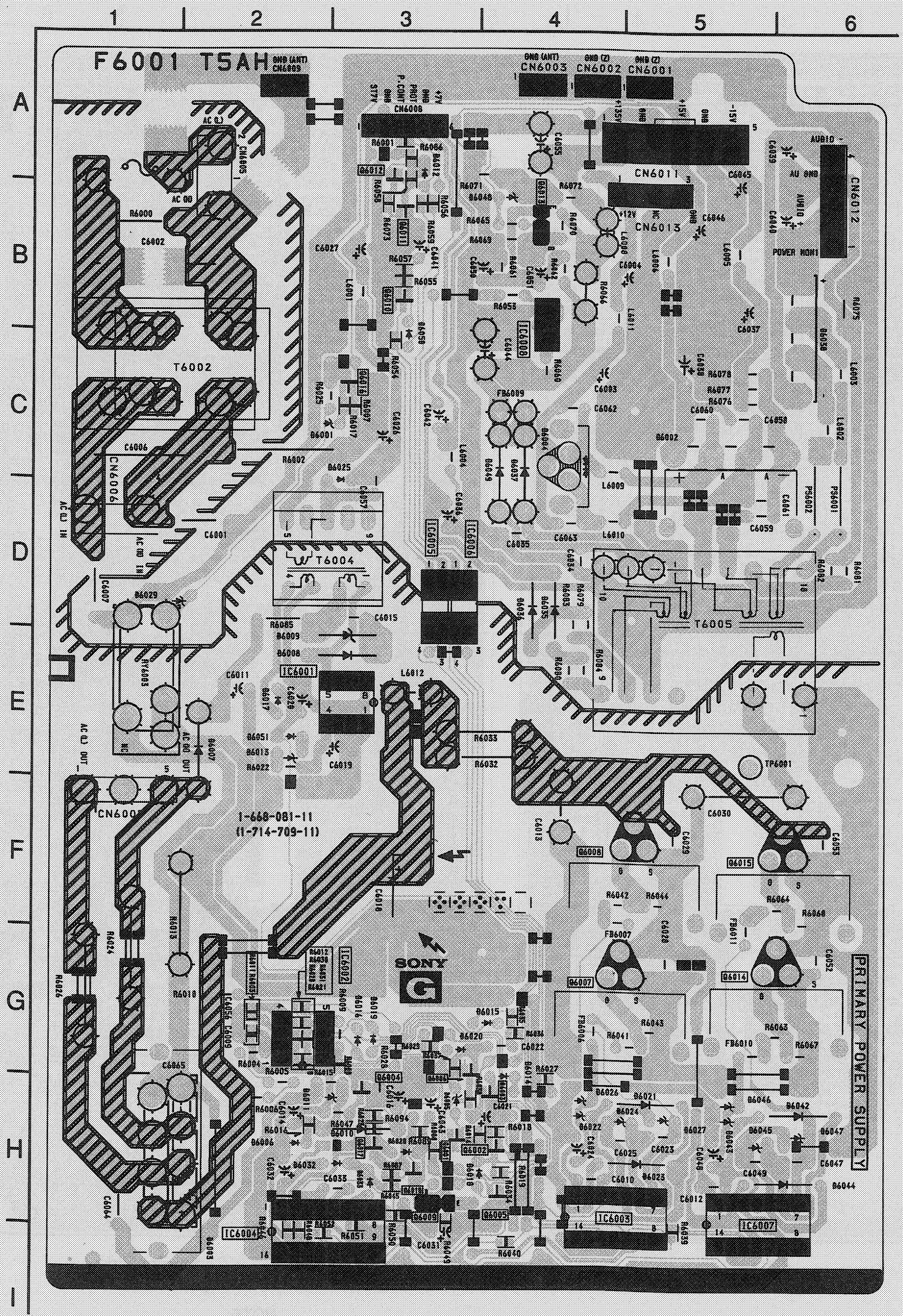
● : The figurs in the parentheses are the voltage difference from primary side ground.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
K
L
M
N
G(POWER SUPPLY)
AC IN 220-240V 50/60Hz
CN6005 2P
AC (L)
AC (N)
CN6009 1P :FASTON
GND (ANT)
TO AE BOARD CN101
CN6006 TO H1 BOARD CN3003
CN6007 TO H1 BOARD CN3004
AC IN (N)
NC
AC IN (L)
AC IN OUT (N)
AC (L) OUT
CN6002 1P :FASTON
GND (Z)
TO G BOARD SHIELD CHASSIS
CN6001 1P :FASTON
GND (Z)
IC6004 IR3M02 CONV DRIVE CONTROL
IC6007 IR2112 CONV DRIVE
Q6015 IRFI740G-LF SW
Q6014 IRFI740G-LF SW
Q6001 2SC2412K SW
Q6002 2SC2412K SOFT START RESET
Q6003 2SB1132K SOFT START RESET
Q6005 2SA1037K SOFT START
T6005 PIT
T6004 SRT
IC6001 STR-Z2151
IC6005 PC123F12 VCC OUT
IC6006 PC123F12 VCC SW
IC6008 SE135N VCC CONTROLER
Q6013 2SA1352 +B-LOCK
Q6010 2SC2412K PROTECT
Q6011 2SC2412K LATCH
Q6012 2SA1037K LATCH
CN6013 3P :MINI TO E BOARD CN806
+12V
NC
GND
CN6012 4P :MINI TO G BOARD CN1605
PDW MONI
AUDIO +
AU GND
AUDIO -
CN6011 5P :MINI TO E BOARD CN808
+135V
GND
+15V
GND
-15V
CN6008 6P WHT :S-MICRO TO E BOARD CN807
ST7V
GND
P.CONT
PROT
GND
+7V
12V
AUDIO+
15V
135V
7V
ST7V
B-55510.<AEP>-G.

Schematic diagram
G board →

G [POWER SUPPLY]

– G Board –


1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
F6001 T5AH
CN6009
CN6003
CN6002
CN6001
CN6008
CN6011
CN6013
CN6012
CN6005
CN6006
CN6007
T6002
T6004
T6005
IC6001
IC6002
IC6003
IC6004
IC6005
IC6006
IC6007
IC6008
TP6001
AC (L)
AC (N)
AC (L) IN
AC (N) IN
AC (L) OUT
AC (N) OUT
+12V
+15V
-15V
+135V
GND
AUDIO
AU GND
POWER MON
1-668-081-11
(1-714-709-11)
SONY
G
PRIMARY POWER SUPPLY

G BOARD

DIODE		*
D6002	C-5	–
D6003	H-2	–
D6004	C-3	–
D6005	H-3	–
D6007	E-2	–
D6008	E-3	–
D6009	E-3	–
D6012	A-3	–
D6013	E-2	–
D6014	H-4	–
D6017	E-2	–
D6018	H-4	–
D6025	C-3	–
D6030	C-6	–
D6032	H-3	–
D6033	H-3	–
D6035	D-4	–
D6036	D-4	–
D6037	C-4	–
D6038	C-6	–
D6042	H-6	–
D6043	H-5	–
D6044	H-6	–
D6045	H-5	–
D6046	H-5	–
D6047	H-6	–
D6048	B-4	–
D6049	C-3	–
D6050	C-3	–
TRANSISTOR		*
Q6001	H-3	①
Q6002	H-4	①
Q6003	H-4	①
Q6005	H-4	①
Q6009	H-3	–
Q6010	B-3	①
Q6011	B-3	①
Q6012	A-3	–
Q6013	B-4	–
Q6014	G-6	–
Q6015	F-6	–
IC		
IC6001	E-3	
IC6004	I-2	
IC6005	D-3	
IC6006	D-3	
IC6007	G-4	
IC6008	B-4	

AE(1/2) [VIDEO SW, AUDIO SW, AUDIO PROCESSER, TUNER, DIGITAL COMB FILTER] AE(2/2) [CHROMA DECODER, TEXT/OSD]

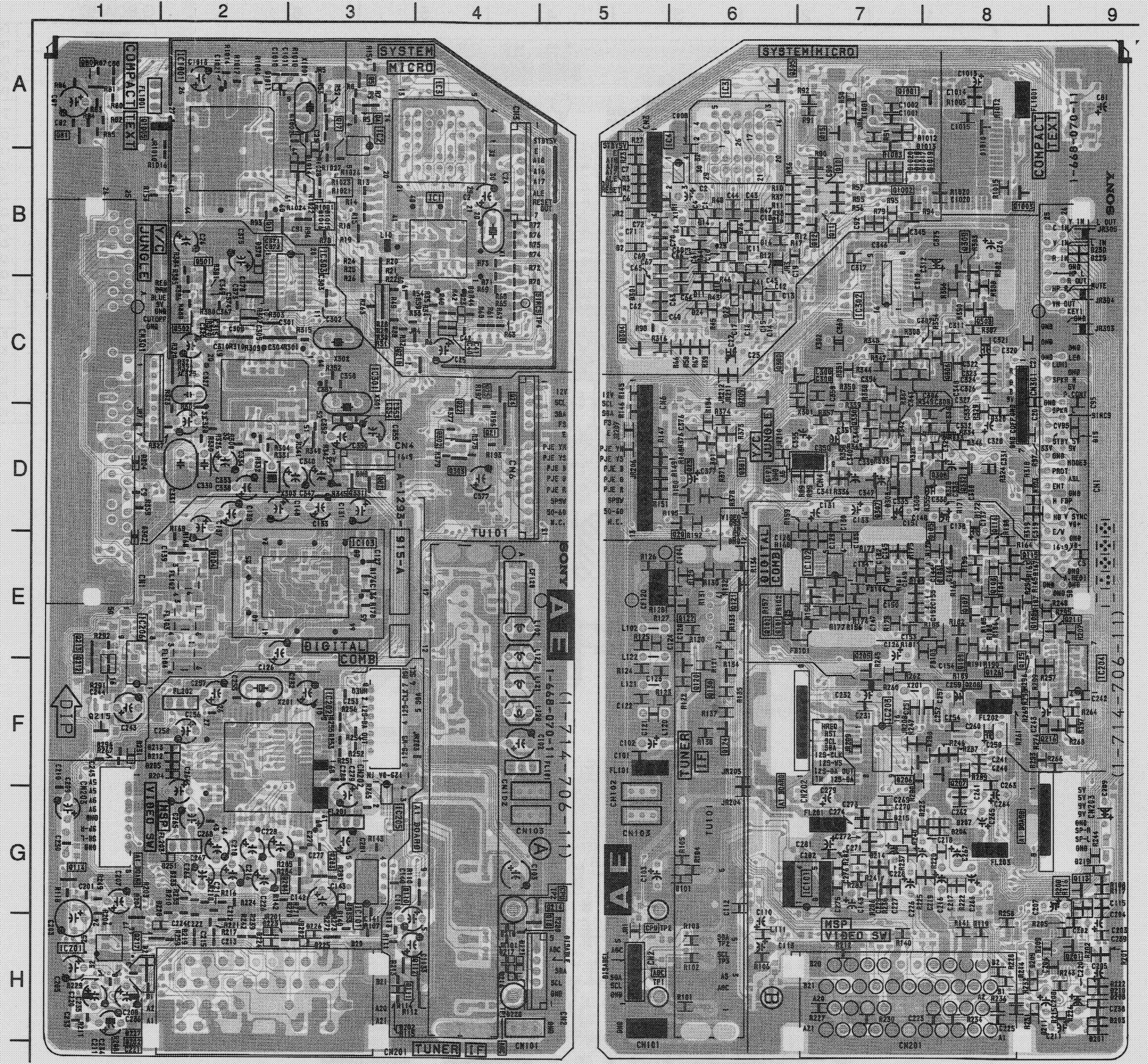
– AE Board –

AE BOARD

DIODE		*
D2	B-5	③
D10	B-6	③
D11	C-6	③
D12	B-6	③
D16	B-6	③
D101	G-6	③
D201	H-9	①
D202	H-3	③
D203	H-9	①
D204	F-2	③
D205	F-2	③
D206	G-8	③
D207	G-8	③
D208	H-9	③
D209	H-8	③
D210	H-9	③
D211	H-8	③
D212	F-2	③
D213	F-2	③
D214	G-7	③
D215	G-7	③
D216	H-4	③
D217	H-4	③
D218	H-4	③
D220	H-4	③
D221	H-4	③
D222	H-9	③
D223	H-2	③
D224	H-2	③
D225	H-3	③
D226	H-3	③
D227	H-1	③
D228	H-2	③
D231	F-1	③
D251	G-2	③
D303	D-7	③
D304	D-1	③
D320	D-8	③
D370	B-2	③
D1010	A-8	④

TRANSISTOR		*
Q1	B-2	②
Q4	A-3	②
Q15	A-7	①
Q17	A-3	②
Q18	H-4	②
Q20	D-6	①
Q21	D-4	②
Q22	D-4	②
Q23	D-6	①
Q24	D-4	②
Q25	C-4	②
Q101	E-7	①
Q102	E-7	①
Q103	E-8	①
Q104	E-2	②
Q105	D-8	①
Q106	E-8	①
Q107	E-8	①
Q108	E-8	①
Q109	E-8	①
Q110	G-4	②
Q111	H-3	②
Q112	H-4	②
Q113	G-9	①
Q114	G-1	②
Q115	E-8	①
Q116	E-8	①
Q120	F-6	①
Q121	E-6	①
Q122	E-6	①
Q124	F-6	①
Q125	E-8	①
Q130	F-6	①
Q201	H-9	①
Q202	H-1	②
Q203	G-3	②
Q204	G-3	②
Q205	F-7	①
Q206	F-7	①
Q207	F-8	①
Q208	F-8	①
Q209	C-6	①
Q210	C-4	②
Q211	E-9	①
Q212	F-1	②
Q213	E-1	②
Q214	G-4	②
Q215	F-1	①
Q216	F-9	①
Q217	H-1	②
Q300	C-7	①
Q301	D-6	①
Q302	D-4	②
Q303	D-4	②
Q304	C-5	①
Q305	C-8	①
Q306	C-8	①
Q307	D-7	①
Q308	D-8	①
Q309	B-8	①
Q330	D-7	①
Q331	D-3	②
Q1001	A-8	①
Q1002	B-7	①

IC	
IC1	B-4
IC2	A-3
IC3	A-4,A-6
IC4	B-6
IC102	E-7
IC103	E-3
IC201	H-1
IC202	F-2
IC203	F-7
IC204	F-9
IC205	G-3
IC206	F-1
IC301	C-2
IC302	C-7
IC303	C-3
IC1001	A-2

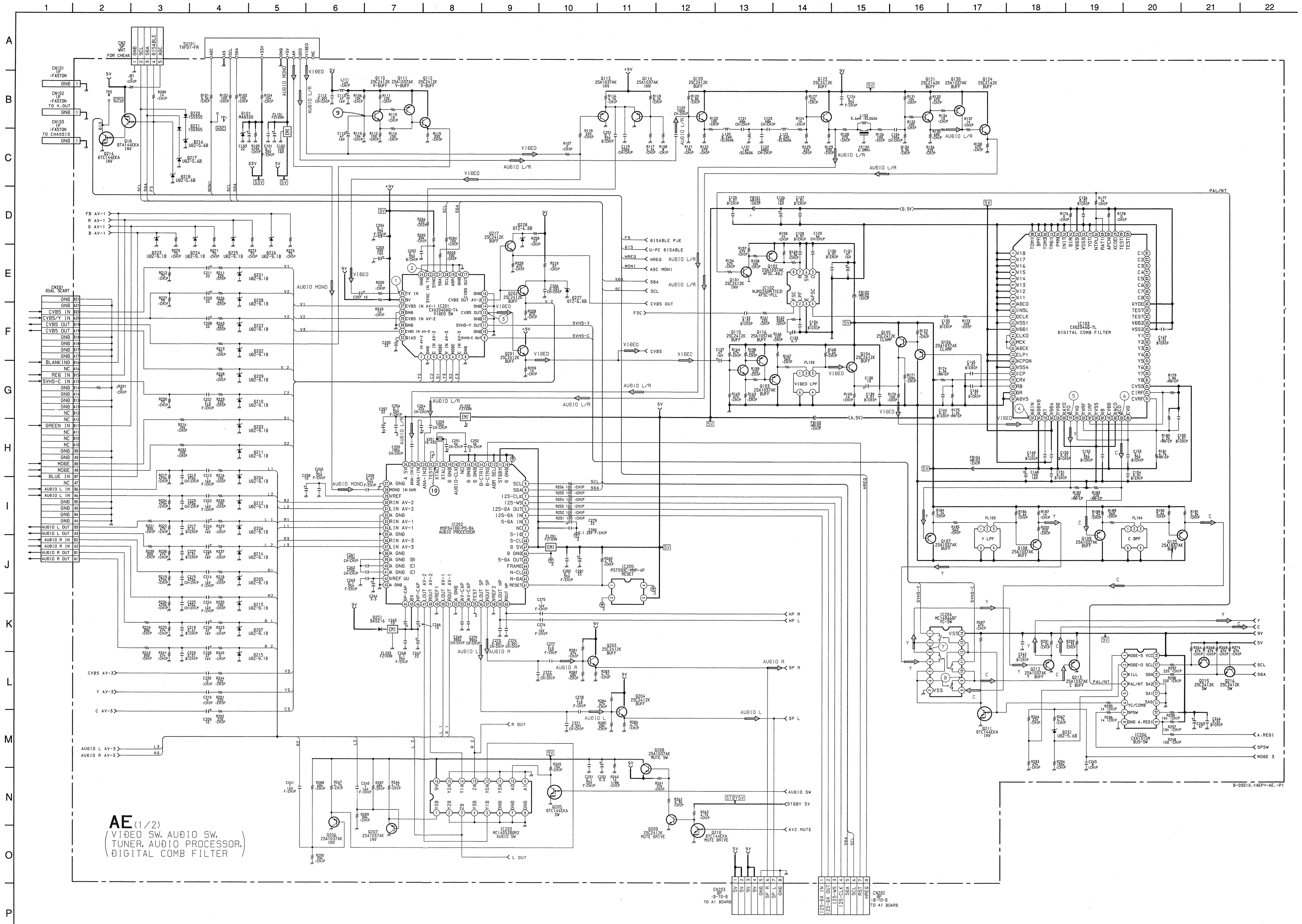

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
SYSTEM MICRO
COMPACT TEXT
Y/C JUNGLE
DIGITAL COMB
VIDEO SW
MSP
TUNER IF
TU101
CN201
CN101
CN103
SONY
A E
1-668-070-11
1-714-706-11

< Component Side >

< Conductor Side >

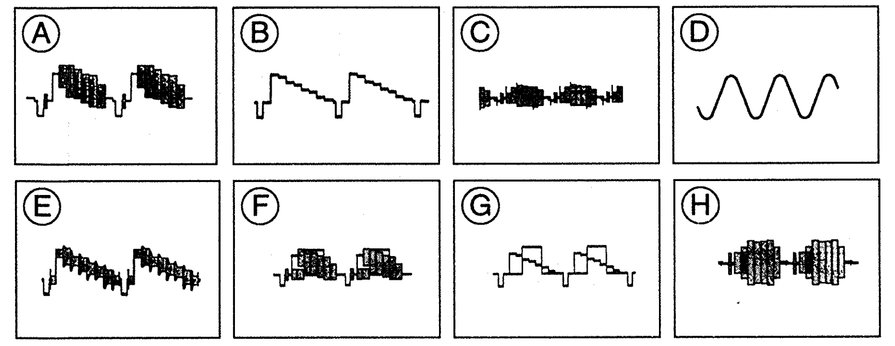
NOTE:

- ▨ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.


IC201 CXA2040AQ-T4 VIDEO SW
IC202 MSP3410D-PS-B4 AUDIO PROCESSOR
IC203 MC14052BDR2 AUDIO SW
IC204 MC14052BDF
IC205 CXA1315M BUS-SW
IC102 NJM2240M(TE2)
IC103 CXD2044Q-1L DIGITAL COMB FILTER
CN201 DUAL SCART
CN202
CN203
TU101
VIDEO
AUDIO L/R
AUDIO MONO
Y LPF
C BPF
SCL
SDA
B-55510.<AEP>-AE.-P1

AE(1/2)
(VIDEO SW, AUDIO SW,
TUNER, AUDIO PROCESSOR,
DIGITAL COMB FILTER)

• AE(1/2) BOARD WAVEFORMS



• WAVEFORMS AE(1/2) BOARD

CIRCUIT WAVEFORM REFERENCE	PAL		SECAM		NTSC	
1	A	1.1Vp-p(H)	E	1.2Vp-p(H)	F	1.5Vp-p(H)
2	A	0.9Vp-p(H)	E	1.0Vp-p(H)	F	0.9Vp-p(H)
3	A	1.0Vp-p(H)	E	1.2Vp-p(H)	F	1.5Vp-p(H)
4	A	1.7Vp-p(H)	E	1.8Vp-p(H)	F	2.2Vp-p(H)
5	B	1.3Vp-p(H)	B	1.3Vp-p(H)	G	1.6Vp-p(H)
6	C	0.5Vp-p(H)	C	0.4Vp-p(H)	H	1.5Vp-p(H)
7	B	1.1Vp-p(H)	B	1.1Vp-p(H)	G	1.2Vp-p(H)
8	C	0.5Vp-p(H)	C	0.4Vp-p(H)	H	1.2Vp-p(H)
9	A	1.1Vp-p(H)	E	1.2Vp-p(H)	F	1.4Vp-p(H)
10	D	1.6Vp-p(18.4MHz)				

AE(1/2) BOARD IC VOLTAGE LIST

REF.	NO.	VOL.	REF.	NO.	VOL.	REF.	NO.	VOL.
IC102	1	2.4		2	GND		45	8.2
	2	1.9(2.1)		3	4.3		46	7.1
	3	GND		4	0.2		47	4.6<3.9>(3.9)
	4	2.9		5	4.2		48	4.5<3.9>(3.9)
	5	3.0		6	0.2		49	GND
	6	4.7		7	4.3		50	4.6<3.9>(3.9)
	7	3.4		8	GND		51	4.5<3.9>(3.9)
IC103	1	GND		9	4.3		52	GND
	2	GND		10	GND		53	4.7<3.9>(3.9)
	3	GND		11	4.3		54	4.7<3.9>(3.9)
	4	GND		12	GND		55	GND
	5	GND		13	4.3		56	0
	6	GND		14	GND		57	0
	7	GND		15	4.3		58	GND
	8	GND		16	GND		59	0.2
	9	GND		18	GND		60	0.2
	10	GND		19	GND		61	4.7
	11	2.3		20	4.2		66	GND
	12	GND		21	4.5		67	4.8
	13	4.5		22	4.6	IC203	1	4.3
	14	2.0		23	3.2		2	GND
	15	2.0		24	GND		3	4.4<3.8>(3.8)
	16	2.0		25	4.3		4	GND
	17	4.5		26	8.5		5	4.5<4.5>(3.8)
	18	4.56		27	4.3		6	GND
	19	GND		28	GND		7	GND
	20	0		29	4.3		8	GND
	21	1.1		30	GND		9	GND
	22	0.6		31	4.3		10	8.9
	23	GND		32	4.3		11	GND
	24	GND	IC202	4	2.5		12	4.3
	25	1.2		5	2.6<4.4>(2.4)		13	4.4<3.9>(3.8)
	26	4.5		6	2.4		14	4.4<3.8>(3.8)
	27	2.3		7	2.4		15	GND
	28	4.5		8	4.5		16	8.9
	29	4.5		9	4.7(4.4)	IC204	1	4.3
	30	GND		10	GND		2	2.6(2.8)
	31	0.6(0.8)		11	4.8		3	2.6(2.8)
	32	2.6		12	GND		4	2.6(2.8)
	33	1.5		13	4.7		5	8.9
	34	1.5		15	GND		6	8.9
	35	GND		16	GND		7	GND
	36	0.9		19	GND		8	2.3
	37	4.5		20	2.3		9	2.3
	38	GND		21	2.3		10	2.3
	39	0.8		22	GND		11	4.3
	40	2.6		23	0.5<0.9>		12	0.4
	41	1.5		24	1.6		13	0.4
	42	1.5		25	1.6		14	9.0
	43	GND		26	4.8	IC205	1	4.7
	52	GND		27	GND		2	GND
	53	4.5		28	3.9		3	4.7
	56	4.5		29	2.7		4	GND
	67	5.0<4.5>(4.6)		30	3.9	IC206	1	0
	68	4.5		31	3.9		2	0<0.2>(0.2)
	69	0.5		32	GND		4	5.0
	70	0.5		33	3.9		6	0.5
	71	GND		34	3.9		7	0.5
	72	GND		35	GND		8	GND
	73	5.0		36	3.8		9	8.8
	74	5.0(4.5)		37	3.9		10	8.8
	75	GND		38	GND		11	GND
	76	GND		39	3.9		12	GND
	77	GND		40	3.9		13	GND
	78	GND		41	3.9		14	4.4<4.1>
	79	GND		42	3.8		15	4.7<4.2>
	80	GND		43	GND		16	8.9
IC201	1	4.2		44	7.2			

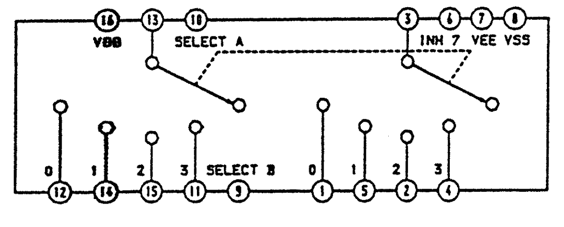
·All voltage are in V.
·Pin numbers which are not described are not used.

AE(1/2) BOARD TRANSISTOR VOLTAGE LIST

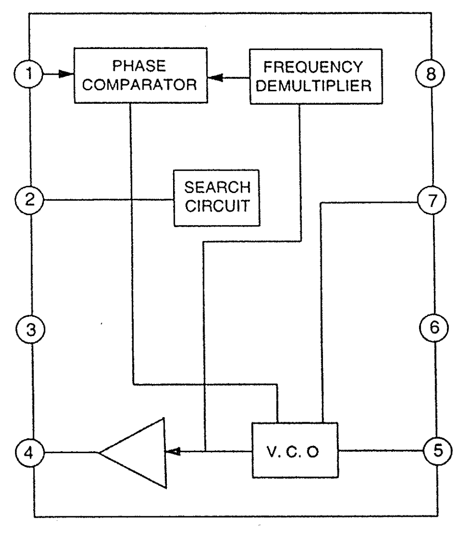
REF.		VOL.	REF.		VOL.
Q18	B	4.8	Q124	B	5.4
	E	4.9		E	4.7
	C	0		C	9.0
Q101	B	0.6	Q125	B	1.7
	E	GND		E	2.3
	C	4.6		C	GND
Q102	B	4.5	Q130	B	8.3
	E	4.7		E	9.0
	C	4.6		C	5.4
Q103	B	2.2	Q201	B	4.2
	E	2.8		E	3.6
	C	GND		C	8.6
Q104	B	2.9	Q202	B	4.3
	E	2.3		E	3.7
	C	4.5		C	7.3
Q105	B	1.1	Q203	B	4.5
	E	1.2		E	3.8
	C	4.6		C	8.9
Q106	B	0.5	Q204	B	4.4
	E	1.1		E	3.8
	C	GND		C	8.9
Q107	B	0.6(0.8)	Q205	B	0
	E	1.2(1.4)		E	GND
	C	GND		C	8.9
Q108	B	1.5	Q206	B	3.7
	E	2.2		E	4.3
	C	GND		C	GND
Q109	B	0.7	Q207	B	3.7
	E	1.4		E	4.3
	C	GND		C	GND
Q110	B	2.3	Q208	B	8.2
	E	1.7		E	9.0
	C	4.1		C	9.0
Q111	B	4.1	Q209	B	0.7
	E	4.7		E	GND
	C	2.6		C	0
Q112	B	2.6	Q210	B	0
	E	1.9		E	GND
	C	4.7		C	0.7
Q113	B	1.7	Q211	B	0.4
	E	2.3		E	GND
	C	GND		C	8.9
Q114	B	1.8	Q212	B	2.6
	E	2.3		E	3.3
	C	GND		C	GND
Q115	B	2.0	Q213	B	2.3
	E	1.4		E	2.9
	C	4.0		C	GND
Q116	B	4.0	Q214	B	0
	E	4.6		E	GND
	C	2.1		C	2.6
Q120	B	5.2	Q215	B	4.9<4.7>
	E	4.5		E	4.7<4.2>
	C	9.0		C	4.2<4.4>
Q121	B	2.2	Q216	B	4.9<4.7>
	E	1.6		E	4.4<4.1>
	C	8.3		C	4.2<4.6>
Q122	B	4.1	Q217	B	4.2OK
	E	3.5		E	3.7
	C	9.0		C	7.2

All voltages are in V.

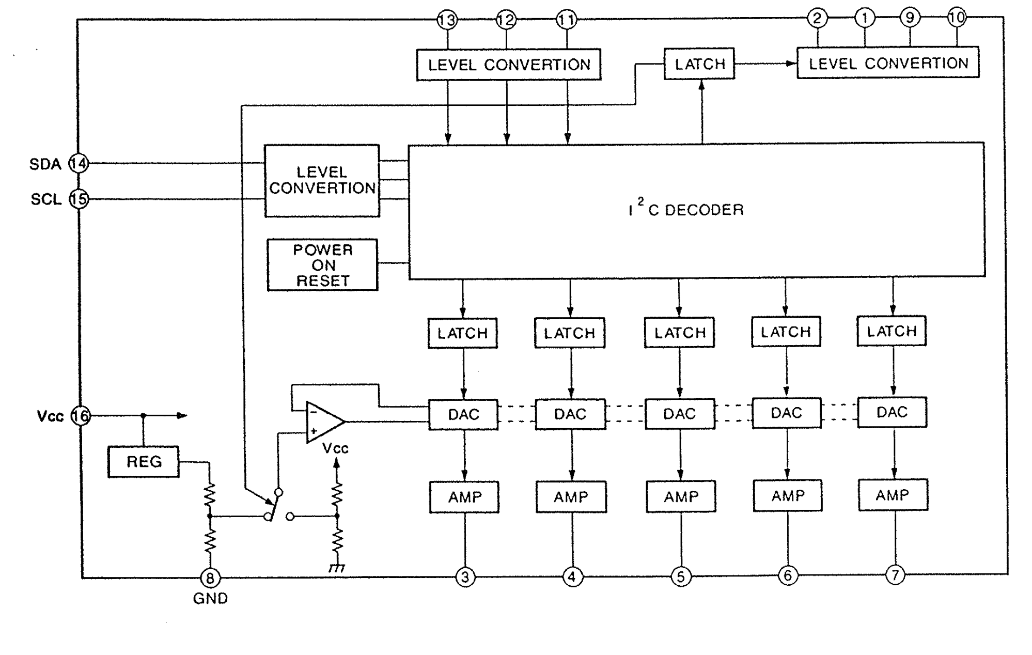
AE (1/2) BOARD : IC203 MC14052BDR2


16
13
10
VDD
SELECT A
3
6
7
8
INH 7
VEE
VSS
0
1
2
3
SELECT B
0
1
2
3
12
14
15
11
9
1
5
2
4

AE(1/2) BOARD : IC102 NJM2240M(TE2)


PHASE COMPARATOR
FREQUENCY DEMULTIPLIER
SEARCH CIRCUIT
V. C. O
1
2
3
4
5
6
7
8

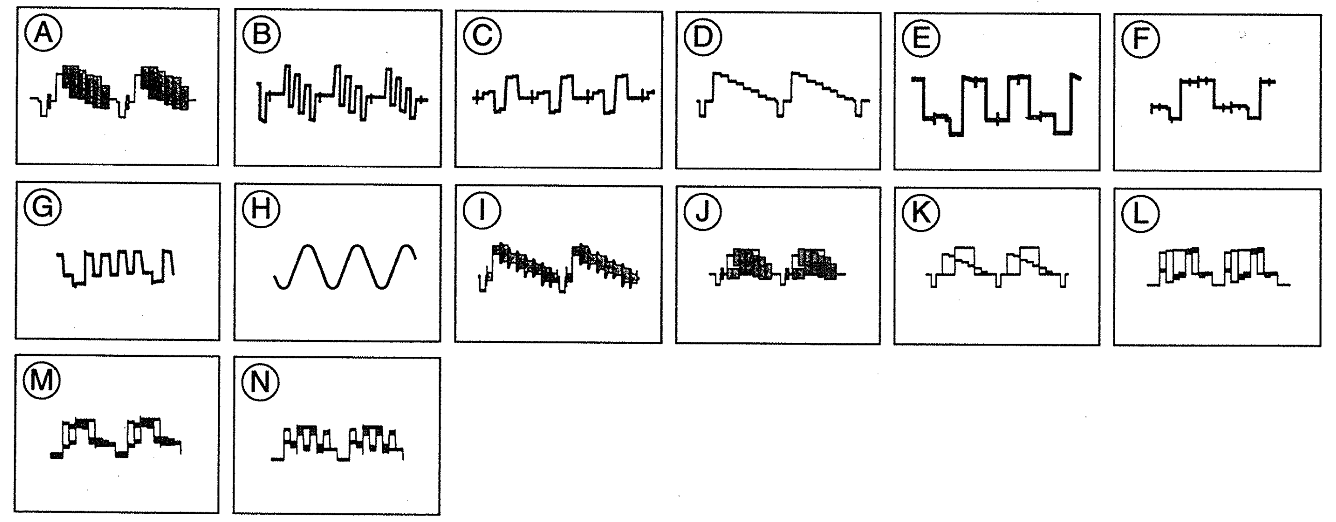
AE(1/2) BOARD : IC206 CXA1315M


13
12
11
2
1
9
10
LEVEL CONVERTION
LATCH
LEVEL CONVERTION
SDA 14
SCL 15
LEVEL CONVERTION
I²C DECODER
POWER ON RESET
LATCH
DAC
AMP
Vcc 16
REG
Vcc
8
GND
3
4
5
6
7

Schematic diagram
← AE(1/2) board

Schematic diagram
AE(2/2) board →

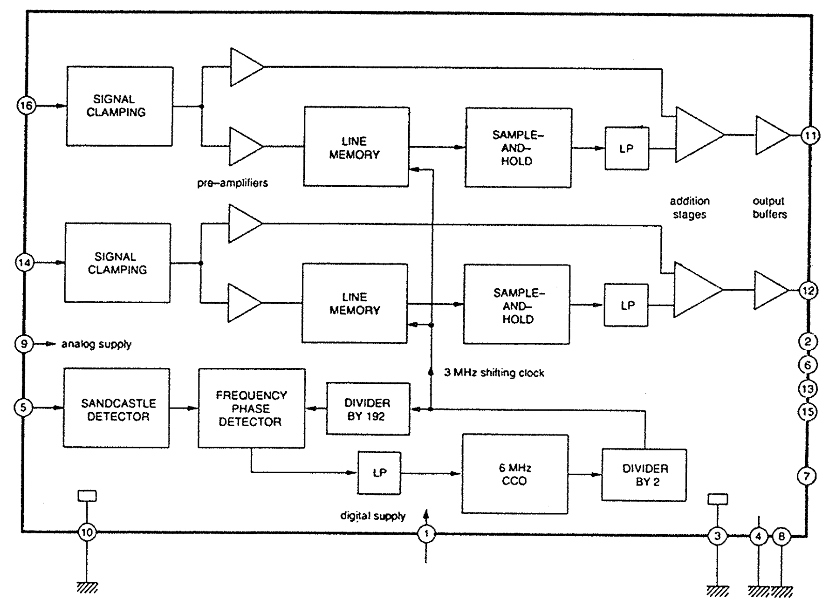
• AE(2/2) BOARD WAVEFORMS



• WAVEFORMS AE(2/2) BOARD

CIRCUIT WAVEFORM REFERENCE	PAL		SECAM		NTSC	
1	A	1.0Vp-p(H)	I	1.2Vp-p(H)	J	1.6Vp-p(H)
2	C	0.6Vp-p(H)	C	1.0Vp-p(H)	C	0.4Vp-p(H)
3	B	0.6Vp-p(H)	B	1.5Vp-p(H)	B	0.4Vp-p(H)
4	B	1.3Vp-p(H)	B	1.1Vp-p(H)	B	1.0Vp-p(H)
5	C	1.1Vp-p(H)	C	1.5Vp-p(H)	C	0.6Vp-p(H)
6	A	1.0Vp-p(H)	I	1.2Vp-p(H)	J	1.6Vp-p(H)
7	D	1.8Vp-p(H)	D	2.2Vp-p(H)	K	2.2Vp-p(H)
8	E	3.6Vp-p(H)	E	3.9Vp-p(H)	L	3.9Vp-p(H)
9	F	3.6Vp-p(H)	F	3.8Vp-p(H)	M	3.9Vp-p(H)
10	G	3.4Vp-p(H)	G	3.7Vp-p(H)	N	3.9Vp-p(H)
11	H	3.4Vp-p(11.5MHz)	H	3.4Vp-p(11.5MHz)	H	3.4Vp-p(11.5MHz)
12	H	1.7Vp-p(20.48MHz)				

AE(2/2) BOARD : IC302 TDA4665T


SIGNAL CLAMPING
pre-amplifiers
LINE MEMORY
SAMPLE-AND-HOLD
LP
addition stages
output buffers
SIGNAL CLAMPING
LINE MEMORY
SAMPLE-AND-HOLD
LP
analog supply
SANDCASTLE DETECTOR
FREQUENCY PHASE DETECTOR
DIVIDER BY 192
3 MHz shifting clock
LP
6 MHz CCD
DIVIDER BY 2
digital supply

AE(2/2) BOARD
IC VOLTAGE LIST

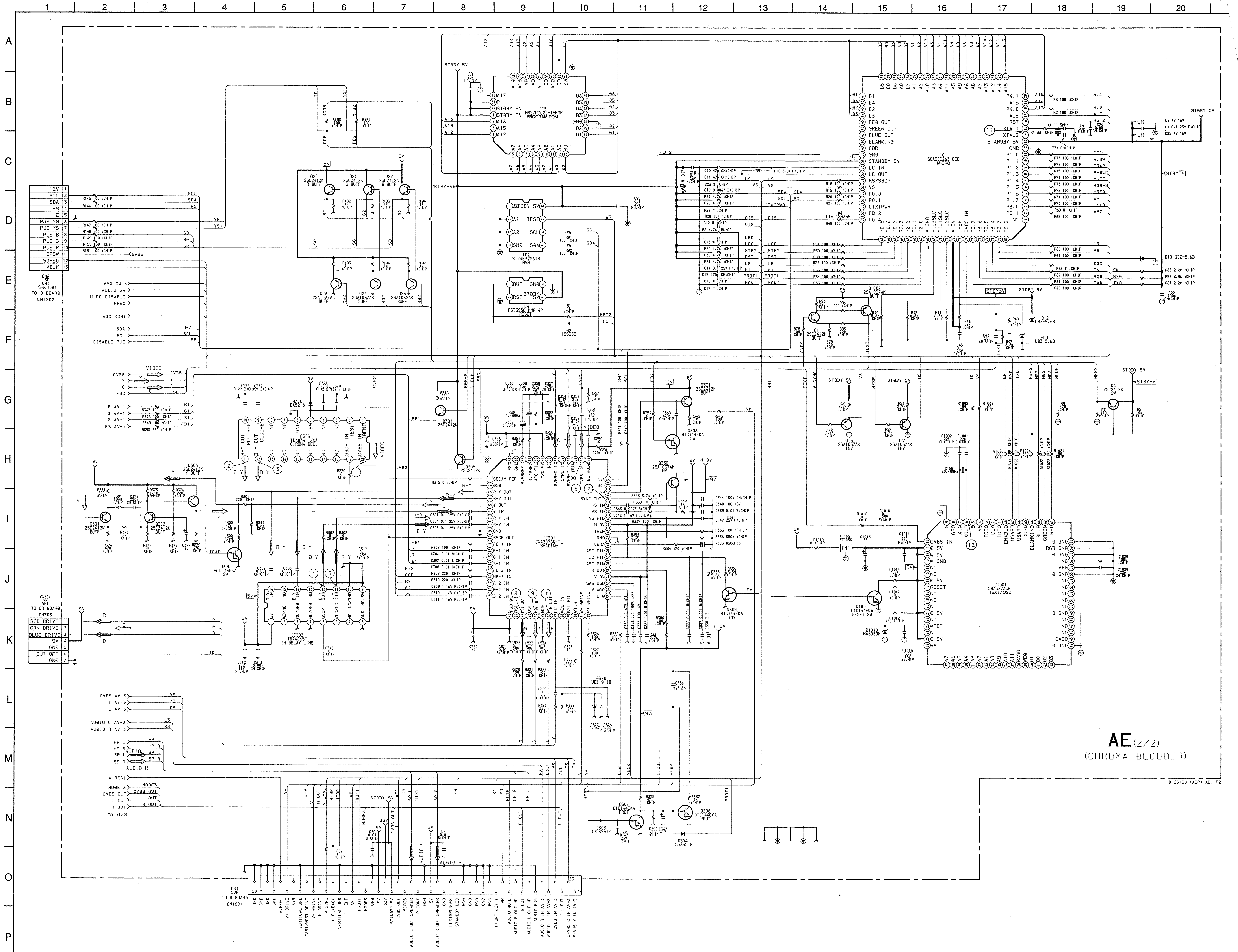
REF.	NO.	VOL.	REF.	NO.	VOL.	REF.	NO.	VOL.
IC1	2	0		4	GND		36	8.9
	3	5.0		5	4.4<4.6>		37	3.2
	4	5.0		6	4.2<4.4>		38	3.4
	5	5.0		7	4.9		39	4.7
	6	0		8	5.0		40	4.2
	7	0.8	IC3	1	5.0		41	2.4
	8	0.1		2	*		42	GND
	9	0.1		3	*		43	1.8
	10	0		4	*		44	8.9
	11	1.8		5	1.9		45	2.5
	12	GND		6	*		46	4.0
	13	5.0		7	2.8		47	3.2
	14	2.4		8	2.5		48	4.4
	15	2.3		9	2.2		49	6.4
	16	4.6(5.0)		10	2.5		50	4.5
	17	1.7		11	2.5		51	3.9(4.5)
	18	0		12	2.5		52	4.2(3.9)
	19	3.0		13	2.1		53	4.0(4.2)
	20	0		14	2.0		54	5.0
	21	2.5(2.9)		15	2.1		55	4.0
	22	1.0		16	GND		57	4.2
	23	3.5(3.2)		17	1.9<1.7>(1.9)		59	8.9
	24	3.2		18	2.8		60	5.5<4.7>(5.6)
	25	2.2(1.8)		19	2.9		61	2.4(7.4)
	26	2.4		20	2.7		62	7.4(5.9)
	27	2.6		21	3.0		63	GND
	28	3.5		22	GND		64	5.3
	29	2.7		23	*	IC302	1	4.9
	30	2.7		24	GND		3	GND
	31	2.6		25	*		4	GND
	32	2.3		26	*		5	0.6
	33	2.7		27	*		8	GND
	34	2.6		28	*		9	4.9
	35	2.6		29	0.9		10	GND
	36	3.0		30	0		11	3.1
	37	2.5		31	5.0		12	3.0
	38	2.8		32	5.0		14	1.4
	39	2.2	IC4	1	5.0		16	1.4
	40	2.8		2	GND	IC303	1	1.6<4.9>(1.2)
	41	0.9(2.1)		3	5.0		5	8.1
	42	5.0(3.0)		4	GND		6	GND
	43	2.5(2.1)	IC301	1	1.6<4.9>(1.6)		9	3.5(3.2)
	44	4.2(1.7)		2	GND		10	4.3
	50	GND		3	5.7<3.0>(5.7)		11	5.7<3.0>(5.7)
	51	5.0		4	5.7<3.0>(5.7)		12	5.7<3.0>(5.7)
	52	0		5	3.7		19	0.7
	53	0		6	5.0		20	3.6
	54	1.3		7	5.5	IC1001	4	0.9
	55	0.8		8	5.5		5	1.3
	56	0(4.5)		9	GND		6	1.6
	57	0(4.4)		10	0.7		7	1.8
	59	0.6(1.3)		11	0.1		9	GND
	60	5.0(2.3)		12	5.5		10	0.9(1.1)
	61	0		13	5.5		11	4.8
	62	3.9		14	5.5		12	4.8
	63	4.6		15	0		13	GND
	64	0.8(0.1)		16	0		16	4.7
	65	5.0		17	5.5		17	0.1
	66	0		18	5.5		21	4.8
	67	3.9(2.3)		19	5.5		23	2.9
	68	GND		20	8.9		25	4.7
	69	0		21	4.4		44	GND
	70	0		22	1.8<2.0>(1.8)		49	GND
	71	0		23	4.4		55	GND
	72	5.0		24	1.7<1.9>(1.7)		56	0
	73	4.9		25	4.5		58	GND
	74	0(4.7)		26	1.6<1.9>(1.8)		59	GND
	75	5.0(4.6)		27	4.9(4.4)		60	GND
	76	5.0(4.7)		28	4.4<28>(3.5)		61	0
	77	5.0(3.0)		29	8.8		62	0
	78	0		30	0.6		63	0
	79	0.8		31	3.0		64	0
	80	5.0		32	3.0		66	4.3<4.8>(4.7)
IC2	1	GND		33	4.1		67	4.9(4.7)
	2	GND		34	4.0		68	3.5<3.0>(3.0)
	3	GND		35	4.6			

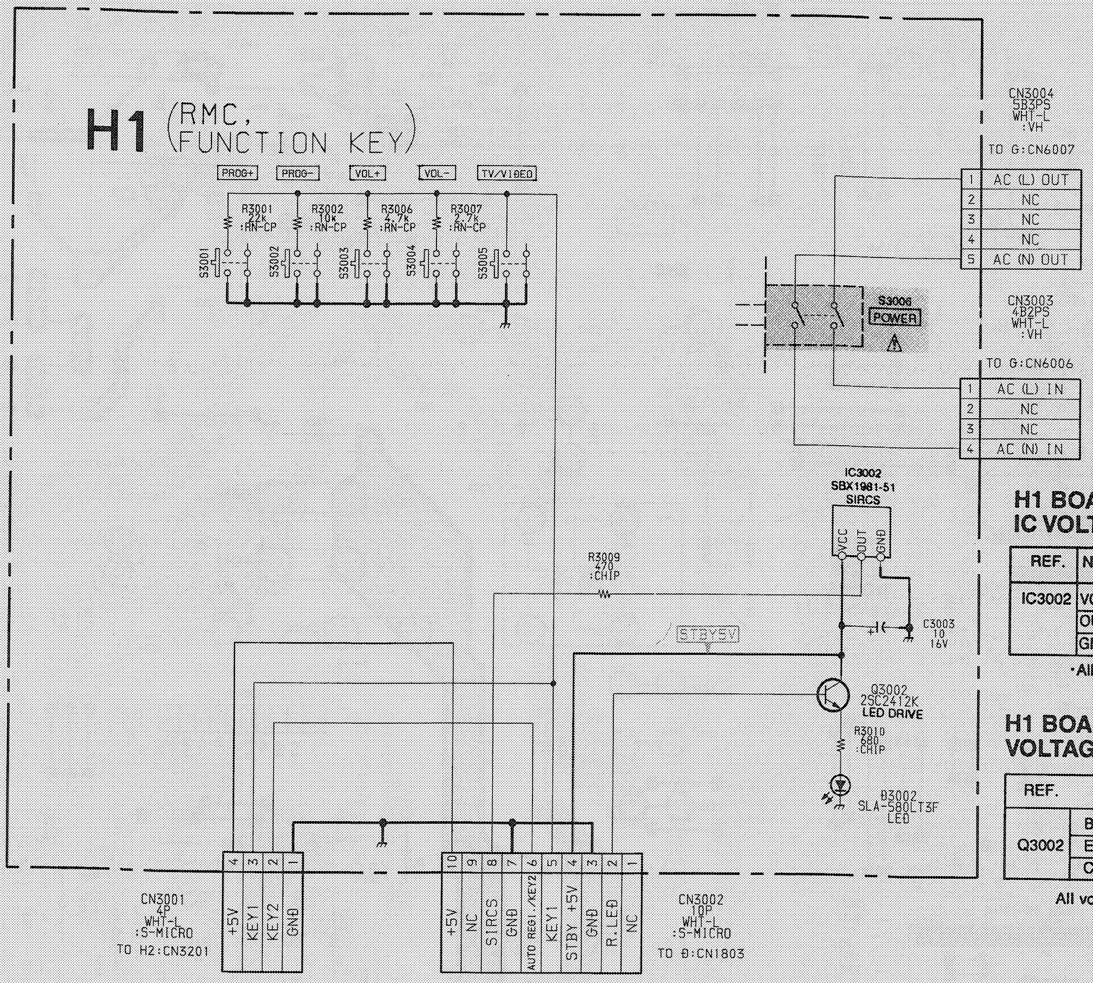
·All voltage are in V.
∗ :Can not mesured.
·Pin numbers which are not described are not used.

AE(2/2) BOARD TRANSISTOR
VOLTAGE LIST

REF.		VOL.	REF.		VOL.
Q1	B	3.6	Q302	B	3.6
	E	3.0		E	3.0
	C	8.2		C	5.7
Q4	B	0.4	Q303	B	5.7
	E	0		E	5.1
	C	5.0		C	8.9
Q15	B	0.2	Q304	B	0
	E	0.8		E	0
	C	GND		C	5.0
Q17	B	0.7	Q305	B	0
	E	1.4		E	0
	C	GND		C	5.0
Q20	B	0.7	Q306	B	0
	E	0.2		E	GND
	C	4.9		C	0.2
Q21	B	0.7	Q307	B	4.2
	E	0.2		E	GND
	C	4.7		C	0
Q22	B	0.7	Q308	B	0
	E	0.2		E	GND
	C	4.8		C	3.4
Q23	B	0	Q309	B	0(4.9)
	E	0.7		E	GND
	C	GND		C	3.6(0)
Q24	B	0	Q330	B	4.4(4.7)
	E	0.7		E	5.1(5.3)
	C	GND		C	GND
Q25	B	0	Q331	B	6.4
	E	0.7		E	5.7
	C	GND		C	8.9
Q300	B	0	Q1001	B	4.6
	E	GND		E	GND
	C	0		C	0.1
Q301	B	3.7	Q1002	B	8.3
	E	3.0		E	9.0
	C	7.5		C	5.3

All voltages are in V.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
IC3 TMS27PC020-15FMR PROGRAM ROM
IC2 ST24C02MBTR NVM
IC4 PST592C-MMP-4P RESET
IC1 SDA20C2463-GE6 MICRO
IC303 TDA8395T/N3 CHROMA SECAM
IC301 CXA1276AQ-TL SHARING
IC302 TDA4665T 1H DELAY LINE
IC1001 SDA5273CP TEXT / OSD
CN1702
CN703 TO CR BOARD
CN1 TO B BOARD CN1801
AE(2/2)
(CHROMA DECODER)
B-SS150.<AEP>-AE.-P2


H1 (RMC, FUNCTION KEY)
PROG+
PROG-
VOL+
VOL-
TV/VIDEO
R3001 22k :RN-CP
R3002 10k :RN-CP
R3006 4.7k :RN-CP
R3007 2.7k :RN-CP
S3001
S3002
S3003
S3004
S3005
S3006 POWER
CN3004 5B3PS WHT-L :VH
TO G:CN6007
1 AC (L) OUT
2 NC
3 NC
4 NC
5 AC (N) OUT
CN3003 4B2PS WHT-L :VH
TO G:CN6006
1 AC (L) IN
2 NC
3 NC
4 AC (N) IN
IC3002 SBX1901-51 SIRCS
VCC
OUT
GND
R3009 270 :CHIP
STBY5V
C3003 10 16V
Q3002 2SC2412K LED DRIVE
R3010 680 :CHIP
D3002 SLA-580LT3F LED
CN3001 4P WHT-L :S-MICRO TO H2:CN3201
+5V
KEY1
KEY2
GND
CN3002 10P WHT-L :S-MICRO TO B:CN1803
+5V
NC
SIRCS
GND
AUTO REG1./KEY2
KEY1
STBY +5V
GND
R.LED
NC

H1 BOARD IC VOLTAGE LIST

REF.	NO.	VOL.
IC3002	VCC	5.0
	OUT	5.0
	GND	GND

·All voltage are in V.

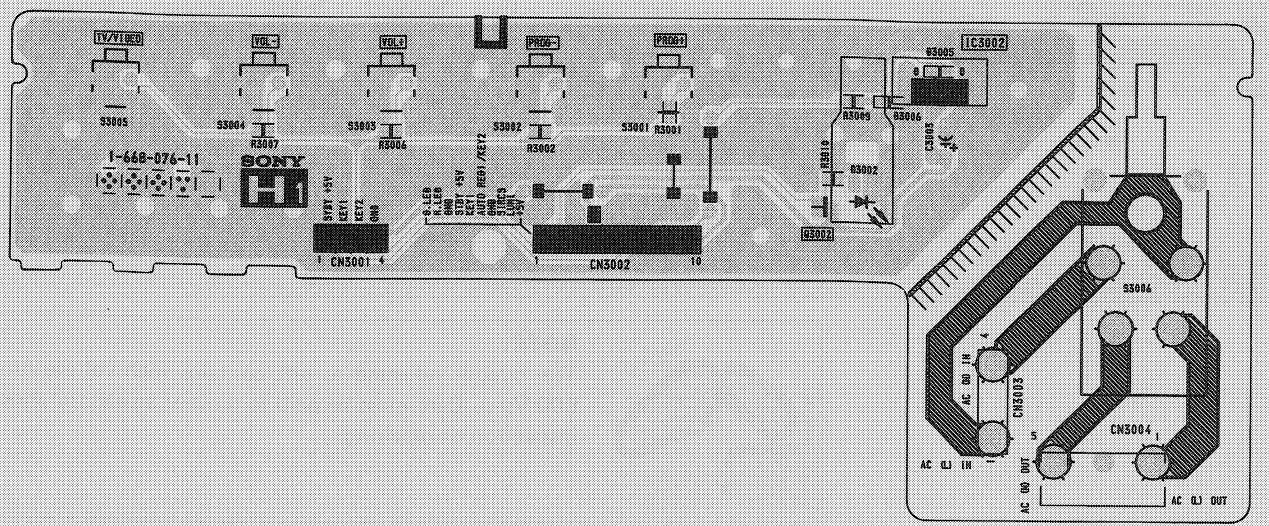
H1 BOARD TRANSISTOR VOLTAGE LIST

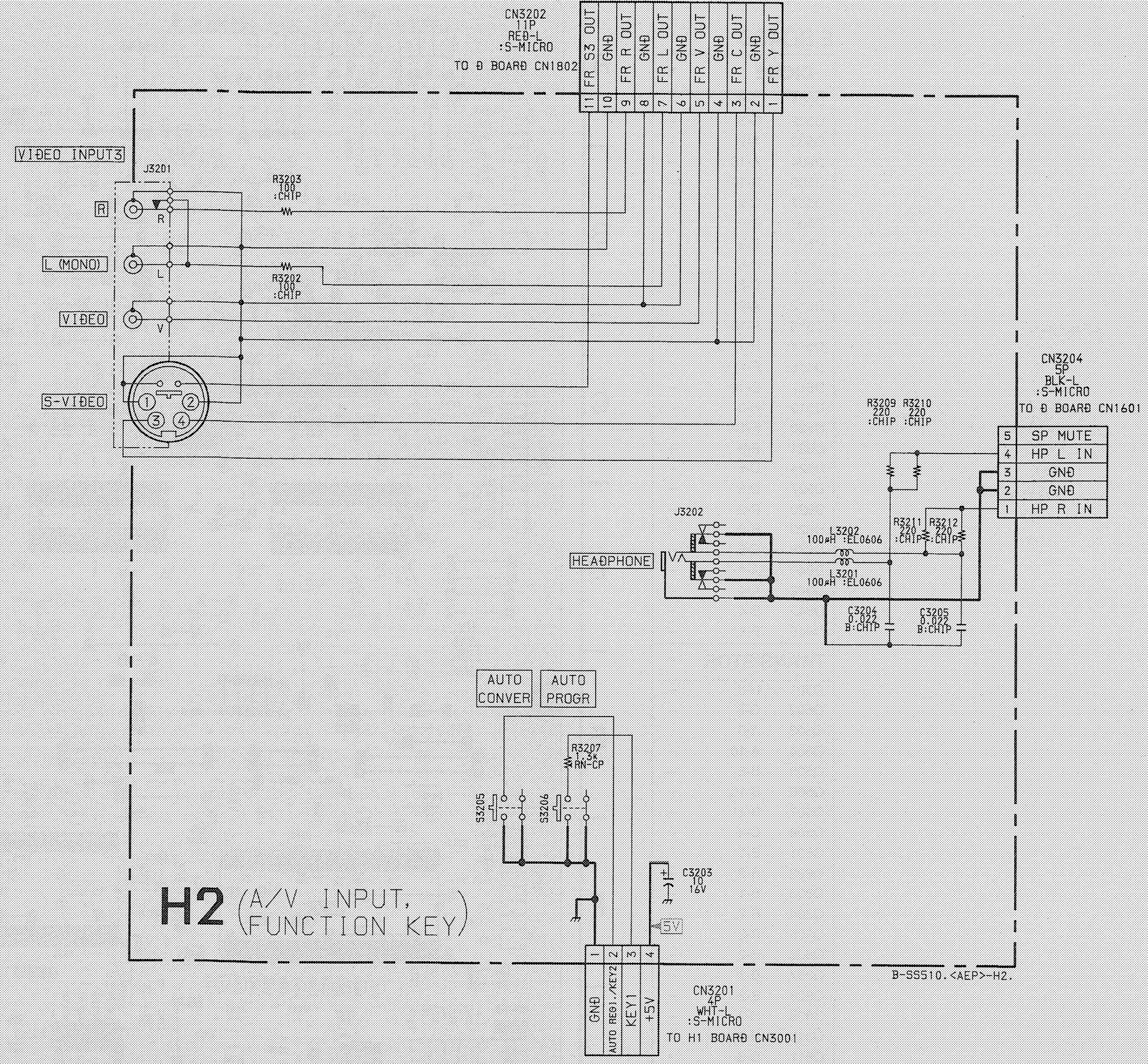
REF.		VOL.
Q3002	B	0.5
	E	0.1
	C	5.0

All voltages are in V.

H1 [FUNCTION KEY, RMC]

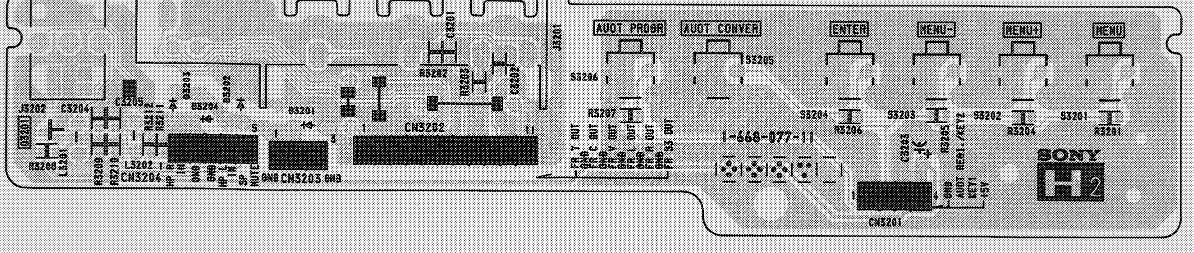
– H1 Board –


TV/VIDEO
VOL-
VOL+
PROG-
PROG+
S3005
S3004
S3003
S3002
S3001
R3007
R3006
R3002
R3001
IC3002
Q3002
D3002
R3009
R3010
C3003
1-668-076-11
SONY H1
CN3001
CN3002
S3006
CN3003
CN3004
AC (L) IN
AC (N) IN
AC (N) OUT
AC (L) OUT


CN3202 11P RED-L :S-MICRO TO B BOARD CN1802
FR S3 OUT
GND
FR R OUT
GND
FR L OUT
GND
FR V OUT
GND
FR C OUT
GND
FR Y OUT
VIDEO INPUT3
J3201
R
L (MONO)
VIDEO
S-VIDEO
R3203 100 :CHIP
R3202 100 :CHIP
CN3204 5P BLK-L :S-MICRO TO B BOARD CN1601
5 SP MUTE
4 HP L IN
3 GND
2 GND
1 HP R IN
R3209 220 :CHIP
R3210 220 :CHIP
J3202
HEADPHONE
L3202 100μH :EL0606
L3201 100μH :EL0606
R3211 220 :CHIP
R3212 220 :CHIP
C3204 0.022 B:CHIP
C3205 0.022 B:CHIP
AUTO CONVER
AUTO PROGR
R3207 1.5k :RN-CP
S3205
S3206
C3203 10 16V
5V
H2 (A/V INPUT, FUNCTION KEY)
B-SS510.<AEP>-H2.
CN3201 4P WHT-L :S-MICRO TO H1 BOARD CN3001
GND
AUTO REG1./KEY2
KEY1
+5V

H2 [A/V INPUT, FUNCTION KEY]

– H2 Board –


AUOT PROGR
AUOT CONVER
ENTER
MENU-
MENU+
MENU
S3206
S3205
S3204
S3203
S3202
S3201
CN3202
CN3203
CN3204
CN3201
J3202
J3201
1-668-077-11
SONY H2

E [H/V-DEF, HV]

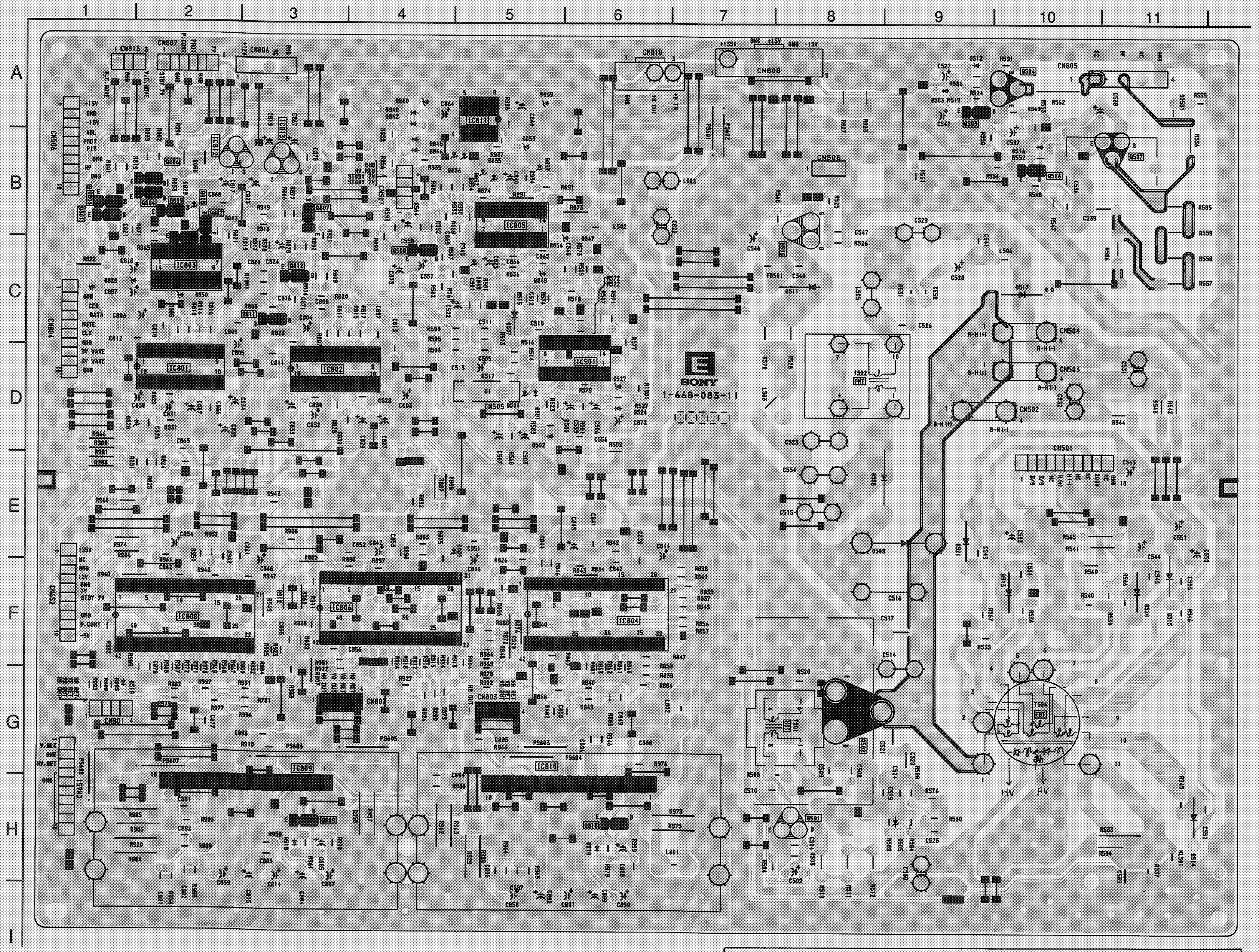
– E Board –

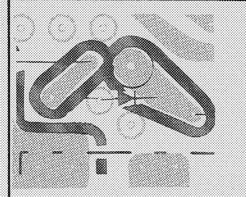
E BOARD

DIODE		*
D501	D-5	–
D502	D-5	–
D503	A-9	–
D504	A-10	–
D506	B-10	–
D507	C-5	–
D508	E-9	–
D509	E-9	–
D510	H-6	–
D511	C-8	–
D512	A-9	–
D513	F-10	–
D514	H-11	–
D515	F-11	–
D517	C-10	–
D519	H-3	–
D520	F-11	–
D521	E-9	–
D524	D-6	–
D527	D-6	–
D820	D-2	–
D829	B-2	–
D835	E-5	–
D840	A-4	–
D842	A-4	–
D845	B-4	–
D846	B-4	–

TRANSISTOR		*
Q501	H-8	–
Q502	G-8	–
Q503	A-9	–
Q504	A-10	–
Q505	B-8	–
Q506	B-10	–
Q507	B-11	–
Q508	C-4	–
Q801	B-1	–
Q802	B-2	–
Q803	B-1	–
Q804	B-2	–
Q805	B-2	–
Q806	B-2	–
Q807	B-3	–
Q808	B-2	–
Q809	H-3	–
Q810	H-6	–
Q811	C-3	–
Q812	C-3	–

IC	
IC501	D-6
IC801	D-2
IC802	D-3
IC803	C-2
IC804	F-6
IC805	B-5
IC806	F-4
IC808	F-2
IC809	H-3
IC810	H-6
IC811	A-5
IC812	B-2

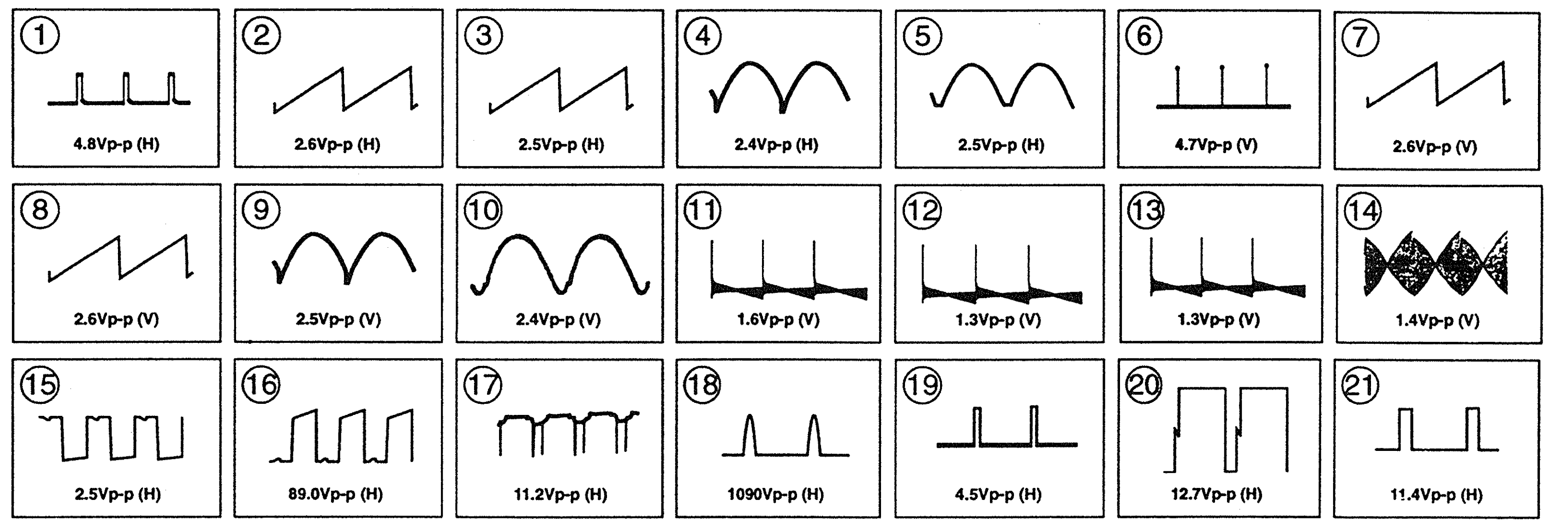

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
E
SONY
1-668-083-11
IC801
IC802
IC803
IC804
IC805
IC806
IC808
IC809
IC810
IC811
IC812
IC501
CN501
CN502
CN503
CN504
CN505
CN506
CN507
CN508
CN801
CN802
CN803
CN804
CN805
CN806
CN807
CN808
CN810
CN813
CN652
T502
T503
T504
HV
AV



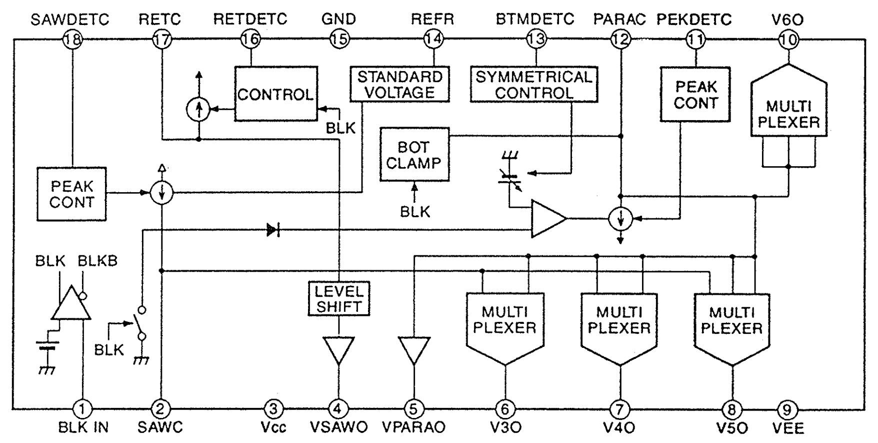
NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

Schematic diagrams
← H1 H2 boards

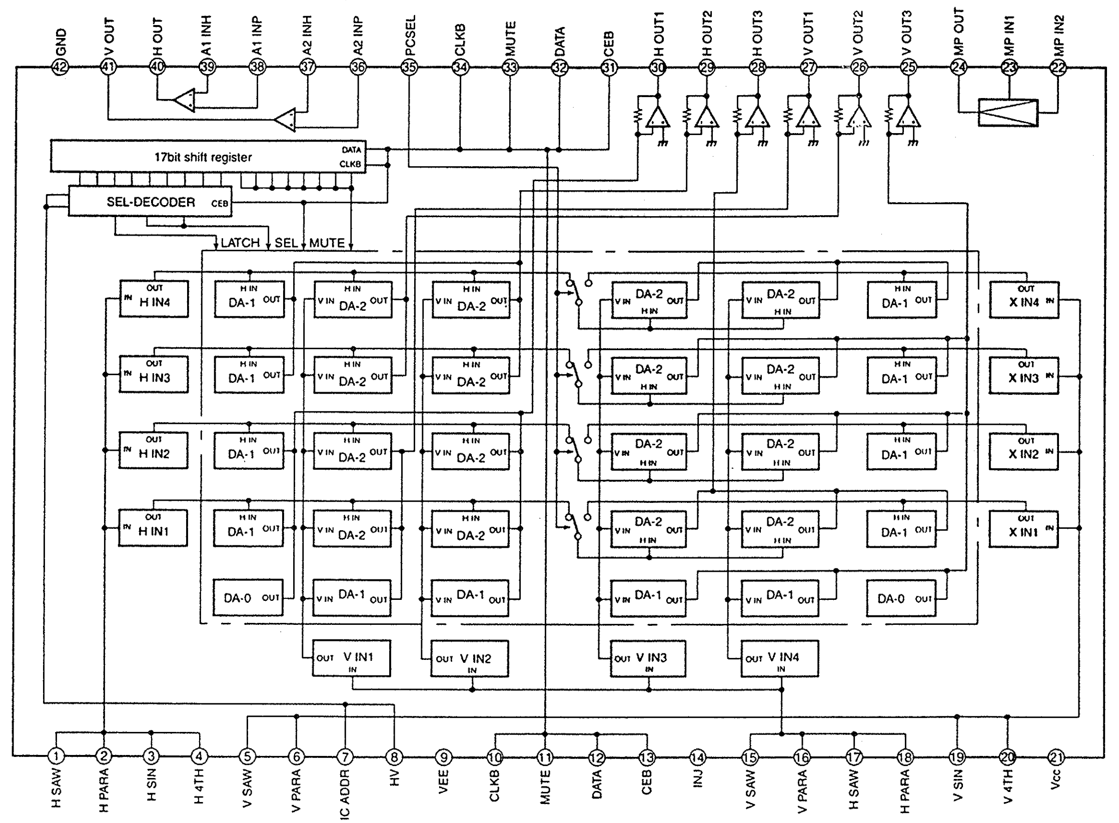
• E BOARD WAVEFORMS

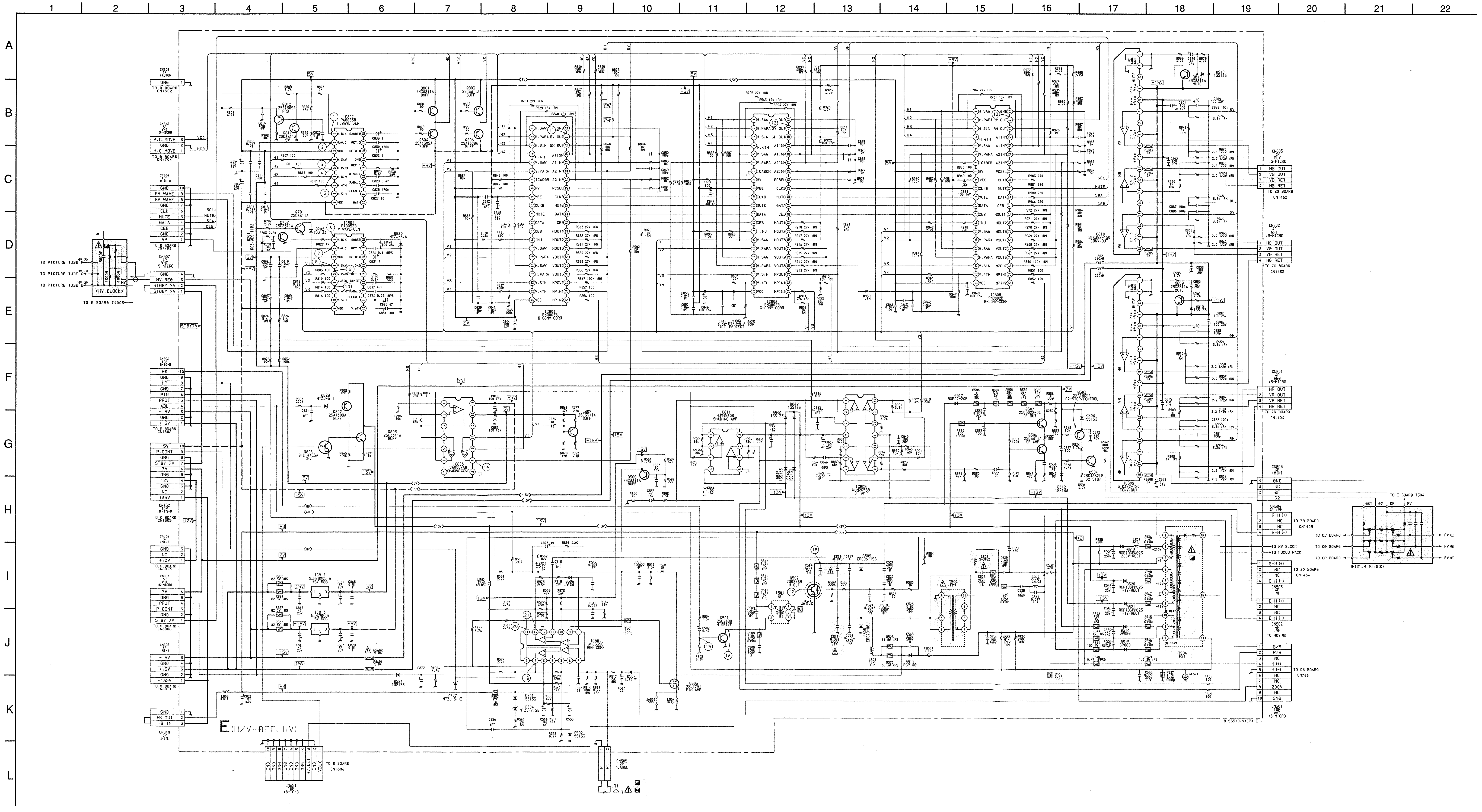


E BOARD : IC801,802 PA0053B


SAWDETC
RETC
RETDETC
GND
REFR
BTMDETC
PARAC
PEKDETC
V6O
CONTROL
STANDARD VOLTAGE
SYMMETRICAL CONTROL
PEAK CONT
MULTI PLEXER
BLK
BOT CLAMP
PEAK CONT
BLK
BLK BLKB
BLK
LEVEL SHIFT
MULTI PLEXER
MULTI PLEXER
MULTI PLEXER
BLK IN
SAWC
Vcc
VSAWO
VPARAO
V3O
V4O
V5O
VEE

E BOARD : IC804,806,808 PM0002B


GND
V OUT
H OUT
A1 INH
A1 INP
A2 INH
A2 INP
PCSEL
CLKB
MUTE
DATA
CEB
H OUT1
H OUT2
H OUT3
V OUT1
V OUT2
V OUT3
MP OUT
MP IN1
MP IN2
17bit shift register
DATA
CLKB
SEL-DECODER
CEB
LATCH
SEL
MUTE
H IN4
H IN3
H IN2
H IN1
DA-0
DA-1
DA-2
X IN4
X IN3
X IN2
X IN1
V IN1
V IN2
V IN3
V IN4
H SAW
H PARA
H SIN
H 4TH
V SAW
V PARA
IC ADDR
HV
VEE
CLKB
MUTE
DATA
CEB
INJ
V SAW
V PARA
H SAW
H PARA
V SIN
V 4TH
Vcc


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
A
B
C
D
E
F
G
H
I
J
K
L
TO PICTURE TUBE
<HV.BLOCK>
TO E BOARD T4003
TO E BOARD T504
(FOCUS BLOCK)
E(H/V-DEF. HV)

E BOARD IC VOLTAGE LIST

REF.	NO.	VOL.	REF.	NO.	VOL.	REF.	NO.	VOL.
IC501	1	0.1		28	0.1		11	5.0
	2	0.7		29	-0.1		12	0.2
	3	12.2		30	-0.5		13	4.6
	4	6.1		31	4.6		14	-2.0
	5	1.8		32	0.2		15	0
	6	8.3		33	5.0		16	0.8
	7	7.9		34	4.7		17	0
	8	1.6		35	0.1		18	-0.8
	9	2.5		36	0.1		19	0.1
	10	4.5		37	0		20	-0.5
	11	1.8		38	0.1		21	5.0
	12	GND		39	0		22	0
	13	1.6		40	0.2		23	0
	14	10.1		41	0		24	0.1
IC801	1	0.2		42	GND		25	-0.1
	2	1.1	IC805	1	7.4		26	0.1
	3	5.0		2	7.4		27	0
	4	0		3	7.2		28	0.1
	5	-0.8		4	12.3		29	0.2
	6	0		5	0		30	-0.2
	7	-1.1		6	0		31	4.6
	9	-5.0		7	0		32	0.2
	11	0.5		8	-0.8		33	5.0
	12	-0.9		9	0		34	4.7
	13	0.3		10	0		35	0.1
	14	1.2		11	-12.3		36	0.1
	15	GND		12	0		37	0
	16	-1.7		13	0		38	0.1
	17	1.2		14	0.9		39	0
	18	-1.5	IC806	1	0		40	0.2
IC802	1	0.4		2	-0.8		41	0
	2	1.1		3	0	IC809	1	GND
	3	5.0		4	-1.1		2	GND
	4	0		5	0		3	-13.0
	5	-0.8		6	-0.4		4	-14.2
	6	0		7	GND		5	14.3
	7	-1.1		8	5.0		6	0
	9	-5.0		9	-4.9		7	0
	11	0.5		10	4.7		8	-14.2
	12	-0.9		11	5.0		9	-0.1
	13	0.3		12	0.2		10	14.3
	14	1.2		13	4.6		11	0
	15	GND		14	-2.0		12	-14.2
	16	-1.7		15	0		13	0
	17	1.2		16	0.8		14	0
	18	-1.5		17	GND		15	0.3
IC803	1	0		18	-0.8		16	0.3
	2	0		19	0.1		17	-14.2
	3	0		20	-0.5		18	0.4
	4	0.1		21	5.0	IC810	1	GND
	5	0.9		22	0		2	GND
	6	0		23	-0.4		3	-13.0
	8	GND		24	0.1		4	-14.2
	9	0		25	0.2		5	14.3
	10	0		26	0.1		6	0
	11	0		27	0		7	0
	13	5.0		28	0.1		8	-14.2
	14	-5.0		29	0		9	-0.1
IC804	1	0		30	0.3		10	14.3
	2	-0.8		31	4.6		11	0.2
	3	0		32	0.2		12	-14.2
	4	-1.1		33	5.0		13	0.2
	5	0		34	4.7		14	0.2
	6	-0.4		35	0.1		15	0
	7	-4.9		36	0.1		16	0
	8	5.0		37	0		17	-14.2
	9	-4.9		38	0.1		18	-0.1
	14	-2.0		39	0	IC811	1	0.1
	15	0		40	0.2		2	0.1
	16	-0.8		41	0		3	0
	17	0		42	GND		4	-12.3
	18	-0.8	IC806	1	0		5	GND
	19	0.1		2	-0.8		6	0
	20	-0.5		3	0		7	0
	21	5.0		4	-1.1		8	12.3
	22	0		5	0	IC812	I	6.8
	23	-0.1		6	-0.4		G	GND
	24	0.1		7	5.0		O	5.0
	25	0.1		8	5.0	IC813	I	-11.3
	26	0.1		9	-4.9		G	GND
	27	0		10	4.7		O	-4.9

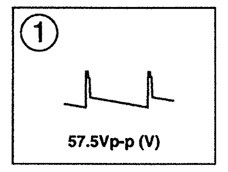
·All voltage are in V.
·Pin numbers which are not described are not used.

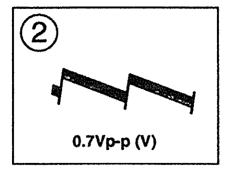
E BOARD TRANSISTOR VOLTAGE LIST

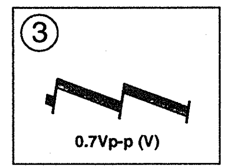
REF.		VOL.
Q501	B	-0.6
	E	GND
	C	48.1
Q502	B	-0.1
	E	GND
	C	137.5
Q503	B	6.9
	E	6.5
	C	0
Q504	B	0
	E	0
	C	450.0
Q506	B	1.7
	E	1.2
	C	12.3
Q507	B	12.3
	E	12.3
	C	660
Q508	B	4.1
	E	3.5
	C	8.3
Q701	B	0.7
	E	GND
	C	0
Q702	B	0.2
	E	GND
	C	4.8
Q801	B	2.3
	E	1.8
	C	5.0
Q802	B	6.0
	E	7.5
	C	1.6
Q803	B	2.3
	E	1.9
	C	5.0
Q804	B	2.3
	E	1.9
	C	-5.0
Q805	B	1.5
	E	0.9
	C	12.3
Q806	B	2.3
	E	1.9
	C	-5.0
Q807	B	2.5
	E	1.9
	C	4.0
Q808	B	0.6
	E	GND
	C	1.5
Q809	B	-14.2
	E	-14.2
	C	-13.1
Q810	B	-14.2
	E	-14.2
	C	-13.1
Q811	B	0.1
	E	GND
	C	0.4
Q812	B	0.6
	E	0
	C	0.1
Q505	G	10.2
	D	20.0
	S	GND

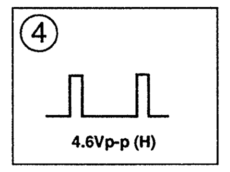
All voltages are in V.

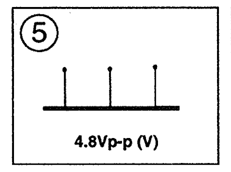
• D BOARD WAVEFORMS

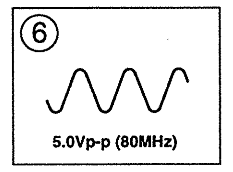


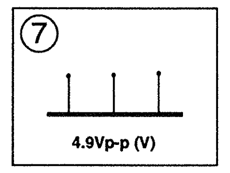


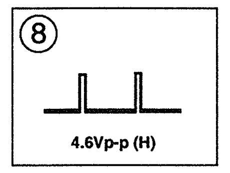


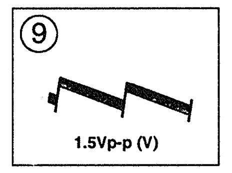


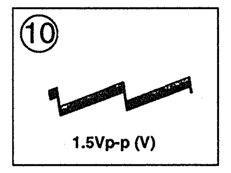




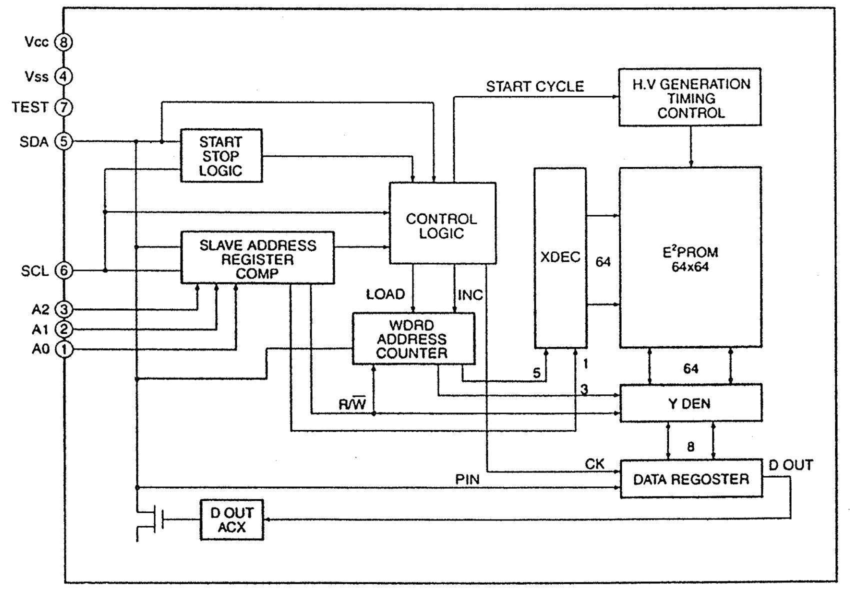








D BOARD : IC1702 ST24C08FM6TR


Vcc ⑧
Vss ④
TEST ⑦
SDA ⑤
SCL ⑥
A2 ③
A1 ②
A0 ①
START STOP LOGIC
START CYCLE
H.V GENERATION TIMING CONTROL
CONTROL LOGIC
SLAVE ADDRESS REGISTER COMP
XDEC
64
E²PROM 64x64
LOAD
INC
WORD ADDRESS COUNTER
5
1
3
64
Y DEN
R/W̄
8
CK
PIN
DATA REGOSTER
D OUT
D OUT ACX

D BOARD IC VOLTAGE LIST

REF.	NO.	VOL.	REF.	NO.	VOL.
IC1501	1	1.1		32	0
	2	14.4		34	0.1
	3	-13.1		35	0.1
	4	-14.3		36	2.8
	5	0.2		37	2.8
	6	14.3		38	5.0
	7	1.1		39	5.0
IC1502	1	GND		40	GND
	2	0		42	4.9
	3	0		44	4.8
	4	0.1		45	4.8
	5	0.1		46	4.4
	6	0.1		47	4.7
	8	GND		48	4.3
	9	0		49	2.2
	10	0.1		50	2.3
	11	-0.4		51	2.3
	13	5.0		52	2.0
	14	-4.9	IC1702	1	GND
IC1503	1	3.1		2	GND
	2	3.1		3	GND
	3	3.1		4	GND
	4	GND		5	4.8
	5	3.0		6	4.8
	6	3.0		7	GND
	7	3.0		8	5.0
	8	5.0	IC1703	1	3.9
IC1602	1	0		2	0
	2	23.0		3	GND
	3	0		4	-14.4
	4	20.5		5	GND
	5	-23.0		6	0
	6	0		7	5.8
	7	GND		8	14.6
	8	0	IC1704	1	0.3
IC1603	1	4.1		2	0
	2	9.0		3	GND
	3	4.1		4	-14.4
	4	GND		5	GND
	5	0.6		6	0
	6	0		7	2.9
	7	0		8	14.6
	8	0.6	IC1706	2	GND
IC1701	1	0.2		3	GND
	2	0		4	4.9
	3	0		5	5.0
	4	4.7	IC1801	I	5.0
	5	5.0		G	GND
	6	0.2		O	7.0
	7	0.2	IC1802	I	13.8
	9	0.7		G	GND
	10	0.2		O	9.1
	11	5.0	IC1803	I	14.6
	12	GND		G	GND
	13	2.4		O	12.1
	14	2.1	IC1804	I	6.7
	17	2.5		G	GND
	18	0.2		O	5.0
	19	3.9	IC1805	1	4.8
	20	3.1		2	2.4
	21	0		3	2.4
	22	0		4	GND
	23	5.0		5	2.4
	24	5.0		6	2.4
	25	0		7	4.8
	30	0.1		8	9.0
	31	0			

·All voltage are in V.
·Pin numbers which are not described are not used.

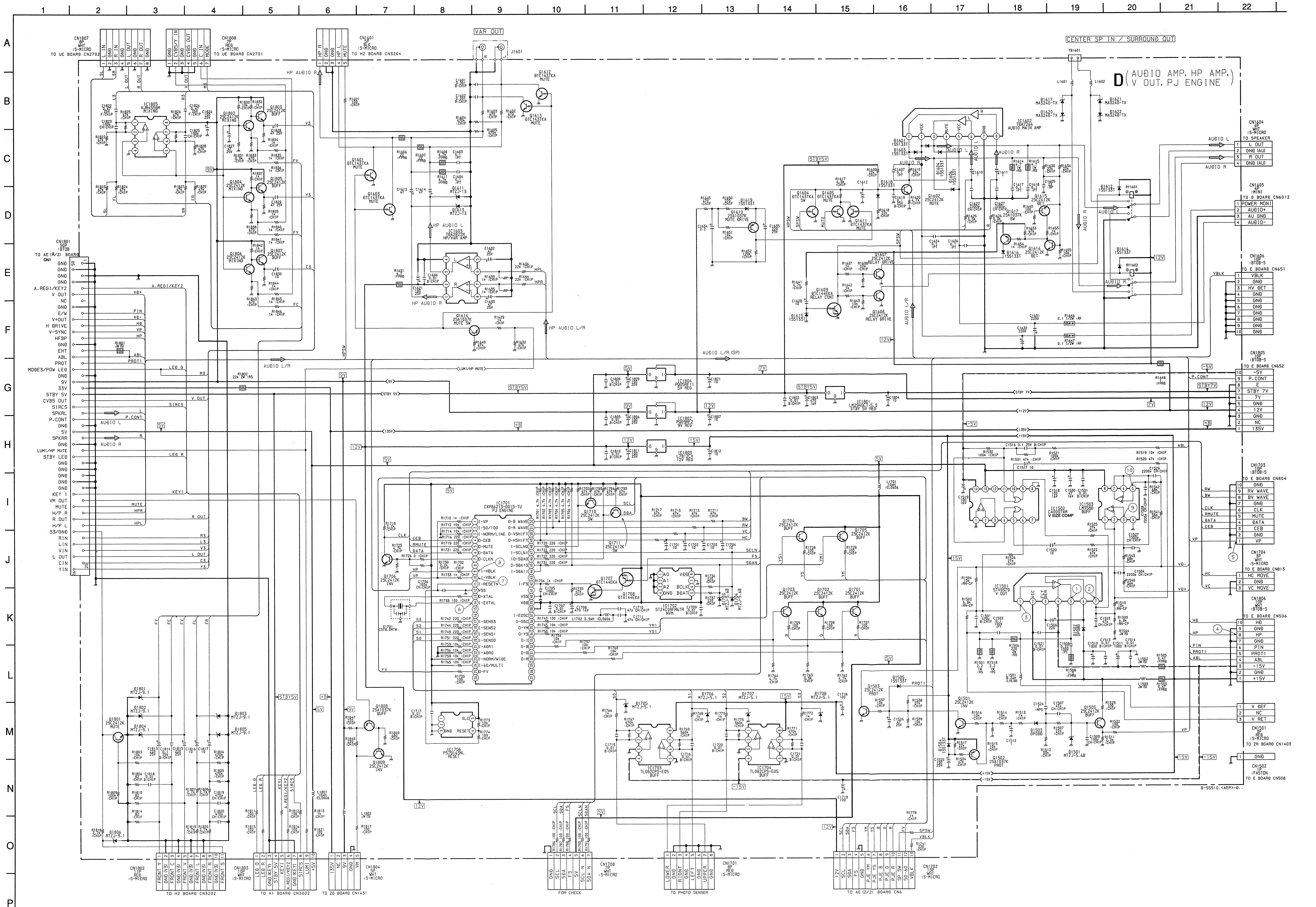
D BOARD TRANSISTOR VOLTAGE LIST

REF.		VOL.	REF.		VOL.
Q1501	B	0.7	Q1701	B	0.1
	E	GND		E	0.2
	C	0		C	5.0
Q1502	B	14.5	Q1702	B	0
	E	14.6		E	0.2
	C	2.0		C	5.0
Q1503	B	0	Q1703	B	0
	E	GND		E	0.2
	C	3.0		C	5.0
Q1505	B	-0.5	Q1704	B	0
	E	0.2		E	0
	C	14.4		C	5.0
Q1601	B	0.7	Q1705	B	0
	E	GND		E	0
	C	0		C	5.0
Q1602	B	1.1	Q1706	B	0.2
	E	0.6		E	GND
	C	20.7		C	4.7
Q1603	B	0.7	Q1707	B	0
	E	GND		E	GND
	C	0		C	5.0
Q1604	B	0.3	Q1708	B	4.9
	E	GND		E	5.0
	C	1.1		C	0
Q1605	B	0.8	Q1710	B	4.6
	E	GND		E	4.7
	C	0.1		C	4.7
Q1607	B	0.3	Q1711	B	4.6
	E	GND		E	4.3
	C	13.9		C	4.0
Q1608	B	0.3	Q1801	B	0
	E	GND		E	GND
	C	13.9		C	0
Q1609	B	0	Q1802	B	2.4
	E	GND		E	1.8
	C	0.3		C	5.0
Q1610	B	13.9	Q1803	B	5.0
	E	13.7		E	4.3
	C	0.1		C	9.0
Q1611	B	0	Q1804	B	2.4
	E	GND		E	1.7
	C	0		C	5.0
Q1612	B	0.7	Q1805	B	5.0
	E	GND		E	4.4
	C	0		C	9.0
Q1613	B	0.7	Q1806	B	2.4
	E	GND		E	1.8
	C	0		C	5.1
Q1614	B	0.2	Q1807	B	5.1
	E	0.8		E	4.4
	C	0.7		C	9.0
Q1615	B	0	Q1808	B	5.8
	E	0		E	6.4
	C	0.2		C	0.7
Q1616	B	0	Q1809	B	0.7
	E	GND		E	GND
	C	0.2		C	1.2
Q1617	B	11.7			
	E	11.8			
	C	0.4			

All voltages are in V.

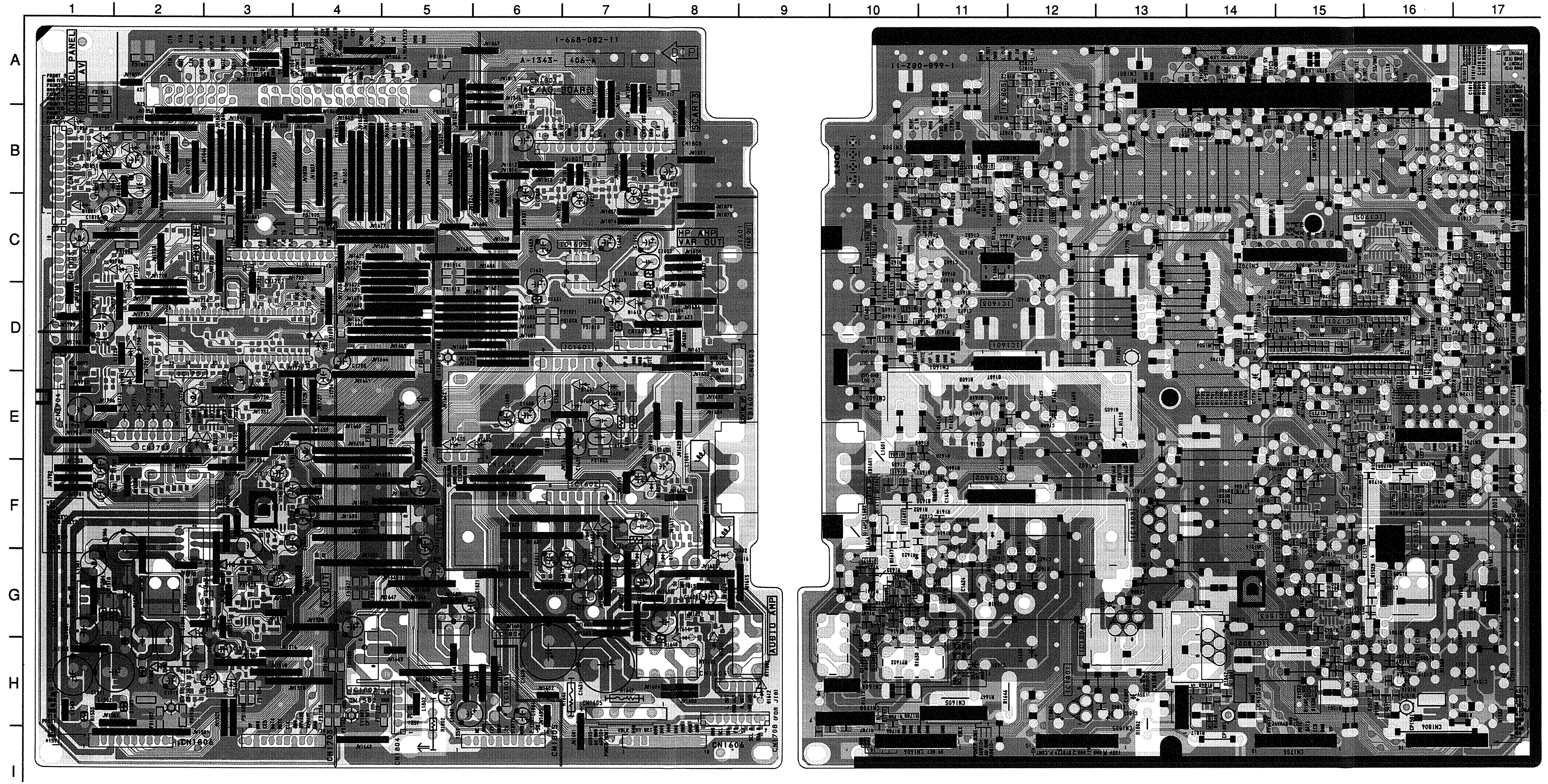
Schematic diagram
← E board

Schematic diagram
D board →


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
A B C D E F G H I J K L M N O P
D (AUDIO AMP, HP AMP, V OUT, PJ ENGINE)
CENTER SP IN / SURROUND OUT
TB1601
VAR OUT
J1601
CN1807 TO UE BOARD CN2702
CN1808 TO UE BOARD CN2701
CN1601 TO H2 BOARD CN3204
IC1805 NJM4558M MIXING
IC1601 NJM4556AM HP/VAR AMP
IC1602 TDA7264 MAIN AMP
CN1604 TO SPEAKER
CN1605 TO G BOARD CN6012
CN1606 TO E BOARD CN651
CN1805 TO E BOARD CN652
CN1801 TO AE (2/2) BOARD CN1
IC1801 STBY 5V REG
IC1802 9V REG
IC1803 12V REG
IC1804 5V REG
IC1701 CXP86213-001S-TU PJ ENGINE
IC1702 ST24C08FM6TR NVM
IC1706 RESET
IC1703 TL082CPS-E05 BUFF
IC1704 TL082CPS-E05 BUFF
IC1501 V OUT
IC1502 V SIZE COMP
CN1703 TO E BOARD CN804
CN1704 TO E BOARD CN813
CN1806 TO E BOARD CN506
CN1501 TO ZR BOARD CN1403
CN1502 TO E BOARD CN508
CN1802 TO H2 BOARD CN3202
CN1803 TO H1 BOARD CN3002
CN1804 TO ZO BOARD CN1451
CN1708 FOR CHECK
CN1701 TO PHOTO SENSER
CN1702 TO AE (2/2) BOARD CN6

D [AUDIO AMP, HP AMP, V OUT, PJ ENGINE]

– D Board –


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
CONTROL PANEL
FRONT AV
1-668-082-11
A-1343-406-A
AV-AG BOARD
SCART3
HP AMP
VAR OUT
AUDIO AMP
CN1804
CN1604
CN1703
SONY

< Component Side >

< Conductor Side >

NOTE:
- ▨ : Pattern from the side which enables seeing.
- ■ : Pattern of the rear side.

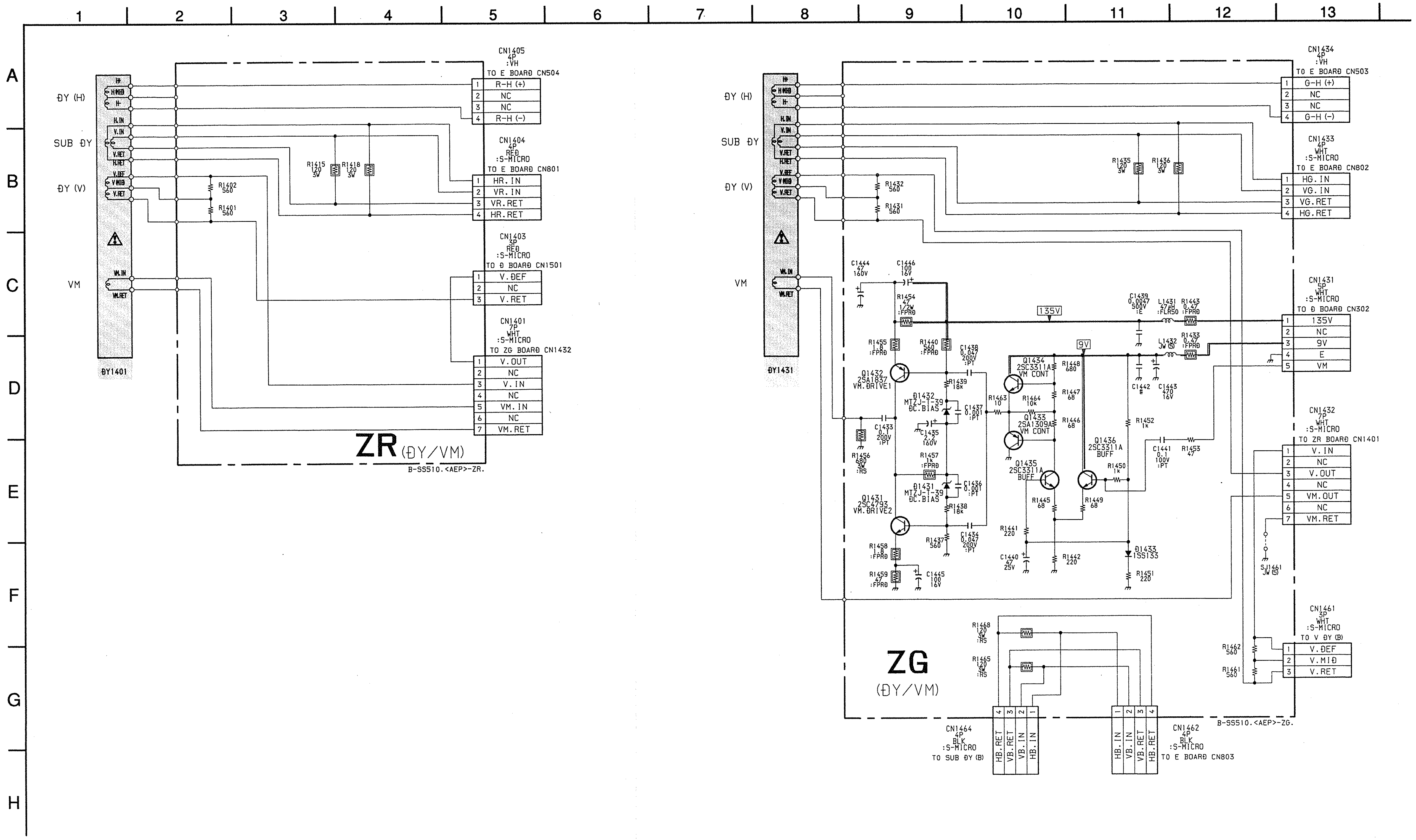
D BOARD

DIODE		*
D1501	G-2,G-16	–
D1502	G-3,G-15	–
D1503	H-2,H-16	–
D1504	H-3,H15	–
D1505	H-15	
D1601	F-7,F-11	–
D1603	F-7,F-11	–
D1604	F-7,F-11	–
D1606	G-7,G-11	–
D1611	C-7,C-11	–
D1612	H-9	–
D1613	D-7,D-11	–
D1614	G-8,G-10	–
D1615	H-8,H-10	–
D1616	G-8,G-10	–
D1618	G-8,G-10	–
D1619	F-8,F-11	–
D1703	E-3,E-16	–
D1704	E-2,E-16	–
D1705	D-2,D-16	–
D1706	C-2,C-17	–
D1707	E-16	–
D1708	D-2,D-16	–
D1801	C-1,C-17	–
D1802	B-1,B-17	–
D1803	B-1,B-17	–
D1804	B-1,B-17	–
D1805	B-2,B-16	–
D1806	B-1,B-17	–

TRANSISTOR		*
Q1501	H-15	①
Q1502	H-16	①
Q1503	H-15	①
Q1505	G-16	①
Q1601	D-11	①
Q1602	F-10	①
Q1603	D-10	①
Q1604	F-10	①
Q1605	F-10	①
Q1607	G-10	①
Q1608	G-10	①
Q1609	G-10	①
Q1610	F-10	①
Q1611	F-10	①
Q1612	C-10	①
Q1613	D-10	①
Q1614	D-10	①
Q1615	G-10	①
Q1616	G-10	①
Q1617	G-10	①
Q1701	F-17	①
Q1702	F-16	①
Q1703	F-16	①
Q1704	F-16	①
Q1705	E-16	①
Q1706	C-15	①
Q1707	D-16	①
Q1708	D-15	①
Q1709	D-16	①
Q1710	D-14	①
Q1711	E-15	①
Q1801	B-17	①
Q1802	B-10	①
Q1803	B-11	①
Q1804	B-11	①
Q1805	B-11	①
Q1806	B-12	①
Q1807	B-12	①
Q1808	H-14	①
Q1809	H-14	①

IC	
IC1501	F-16
IC1502	F-15
IC1503	G-15
IC1602	F-7,F-11
IC1603	C-7,C-11
IC1701	D-3,D-15
IC1702	E-15
IC1703	D-17
IC1704	D-17
IC1706	C-16
IC1801	H-6,H-12
IC1802	H-4,H-14
IC1803	F-5,F-13
IC1804	G-5,G-13
IC1805	A-12

Schematic diagrams
ZG ZR boards ➡



1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
ÐY (H)
SUB ÐY
ÐY (V)
VM
ÐY1401
CN1405 4P :VH TO E BOARD CN504
R-H (+)
NC
NC
R-H (-)
CN1404 4P RED :S-MICRO TO E BOARD CN801
HR.IN
VR.IN
VR.RET
HR.RET
CN1403 3P RED :S-MICRO TO D BOARD CN1501
V.ÐEF
NC
V.RET
CN1401 7P WHT :S-MICRO TO ZG BOARD CN1432
V.OUT
NC
V.IN
NC
VM.IN
NC
VM.RET
R1402 560
R1401 560
R1415 120 5W
R1418 120 5W
ZR (ÐY/VM)
B-SS510.<AEP>-ZR.
ÐY1431
CN1434 4P :VH TO E BOARD CN503
G-H (+)
NC
NC
G-H (-)
CN1433 4P WHT :S-MICRO TO E BOARD CN802
HG.IN
VG.IN
VG.RET
HG.RET
R1432 560
R1431 560
R1435 120 5W
R1436 120 5W
CN1431 5P WHT :S-MICRO TO D BOARD CN302
135V
NC
9V
E
VM
CN1432 7P WHT :S-MICRO TO ZR BOARD CN1401
V.IN
NC
V.OUT
NC
VM.OUT
NC
VM.RET
CN1461 3P WHT :S-MICRO TO V ÐY (B)
V.ÐEF
V.MIÐ
V.RET
R1462 560
R1461 560
SJ1461
135V
9V
Q1432 2SA1837 VM.DRIVE1
Q1431 2SC4793 VM.DRIVE2
D1432 MTZJ-T-39 DC.BIAS
D1431 MTZJ-T-39 DC.BIAS
Q1434 2SC3311A VM CONT
Q1433 2SA1309A VM CONT
Q1435 2SC3311A BUFF
Q1436 2SC3311A BUFF
D1433 1SS133
L1431
L1432
C1444 47 160V
C1446 100 16V
C1433
C1435
C1436
C1437
C1438
C1439
C1440 47 25V
C1441 0.1 100V
C1442
C1443
C1445 100 16V
R1454
R1455
R1456
R1457
R1458
R1459
R1440
R1439
R1437 560
R1438 18k
R1441 220
R1442 220
R1443
R1444
R1445 68
R1446 68
R1447 68
R1448 680
R1449 68
R1450 1k
R1451 220
R1452 1k
R1453 47
R1463 10
R1464 10k
R1465
R1468
ZG (ÐY/VM)
CN1464 4P BLK :S-MICRO TO SUB ÐY (B)
HB.RET
VB.RET
VB.IN
HB.IN
CN1462 4P BLK :S-MICRO TO E BOARD CN803
HB.IN
VB.IN
VB.RET
HB.RET
B-SS510.<AEP>-ZG.

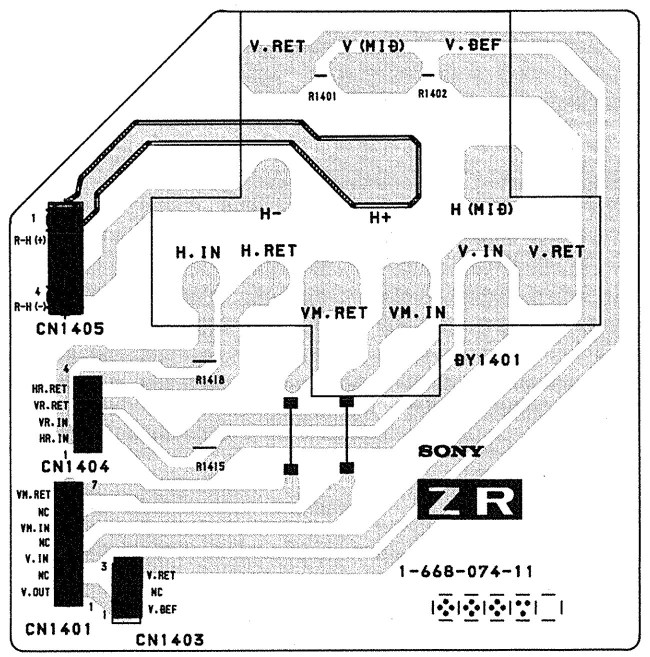
ZG BOARD TRANSISTOR VOLTAGE LIST

REF.		VOL.
Q1431	B	1.0
	E	0.5
	C	68.6
Q1432	B	134.5
	E	134.9
	C	68.6
Q1434	B	5.9
	E	6.1
	C	GND
Q1435	B	6.5
	E	6.1
	C	9.0
Q1435	B	2.2
	E	1.6
	C	5.9
Q1436	B	2.2
	E	1.6
	C	9.0

All voltages are in V.

ZR [DY/VM]

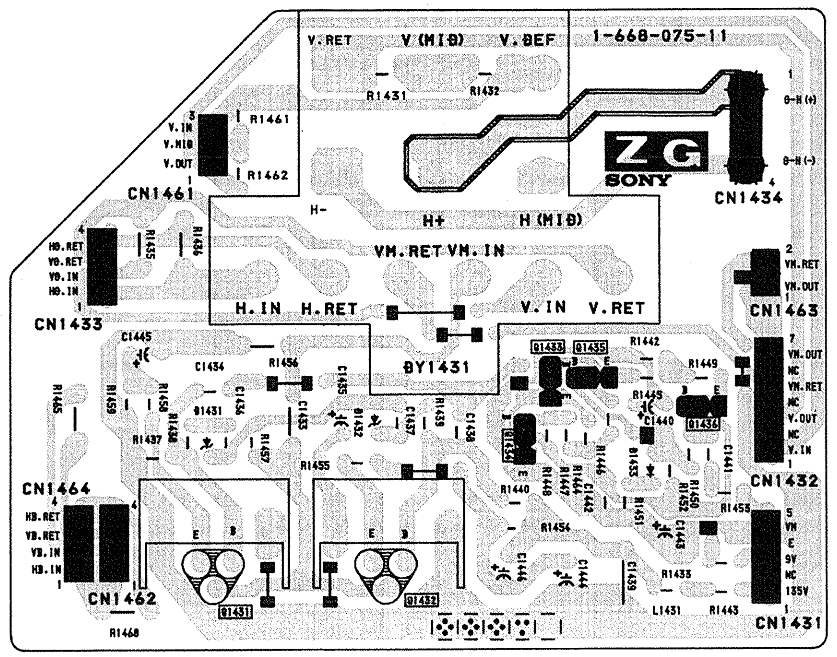
– ZR Board –



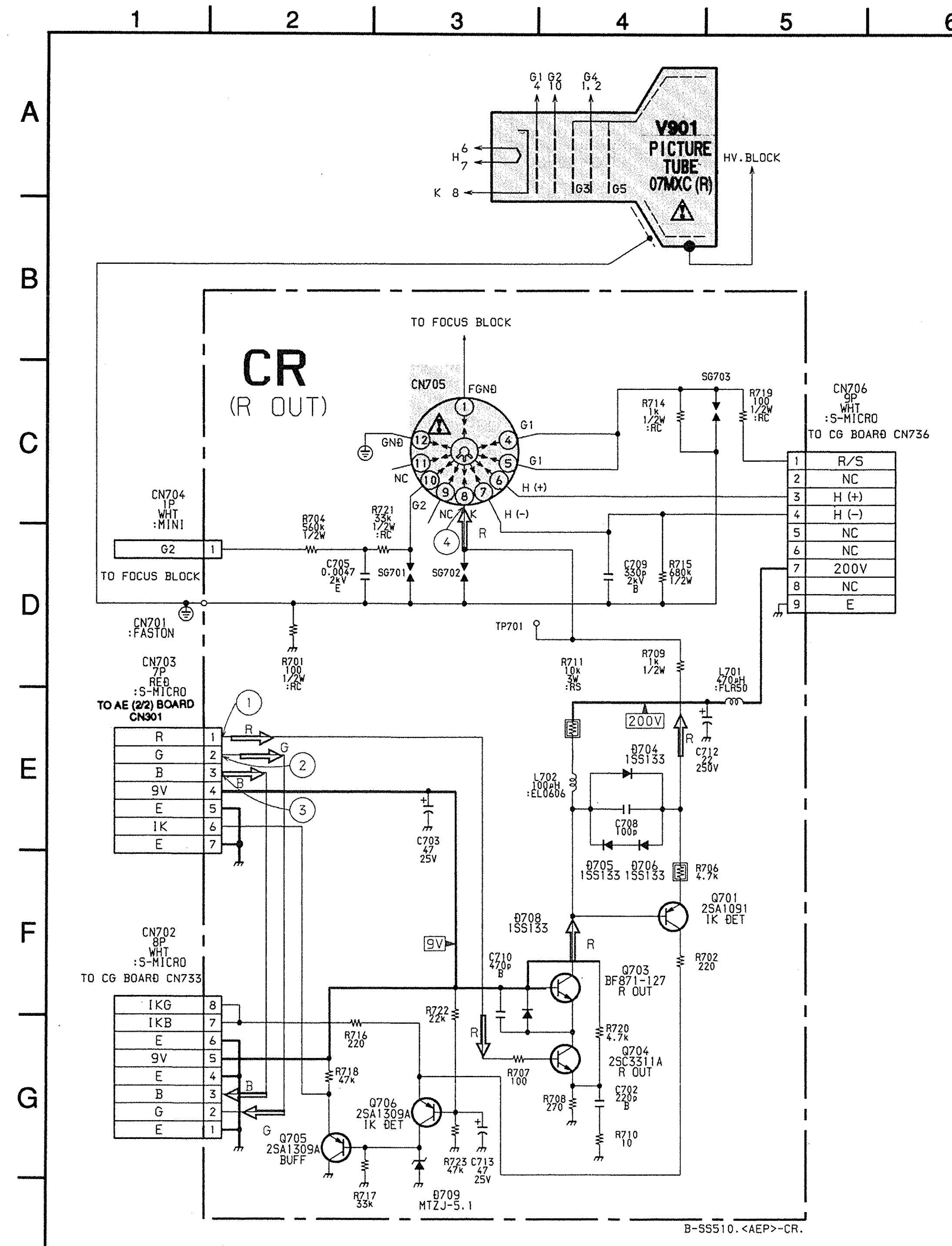
V.RET
V (MIÐ)
V.ÐEF
R1401
R1402
H-
H+
H (MIÐ)
H.IN
H.RET
V.IN
V.RET
VM.RET
VM.IN
ÐY1401
CN1405
CN1404
CN1401
CN1403
R1418
R1415
SONY
ZR
1-668-074-11

ZG [DY/VM]

– ZG Board –



V.RET
V (MIÐ)
V.ÐEF
1-668-075-11
R1461
R1462
R1431
R1432
CN1461
CN1434
ZG
SONY
H-
H+
H (MIÐ)
VM.RET
VM.IN
H.IN
H.RET
V.IN
V.RET
CN1433
CN1463
ÐY1431
CN1432
CN1464
CN1462
CN1431
L1431

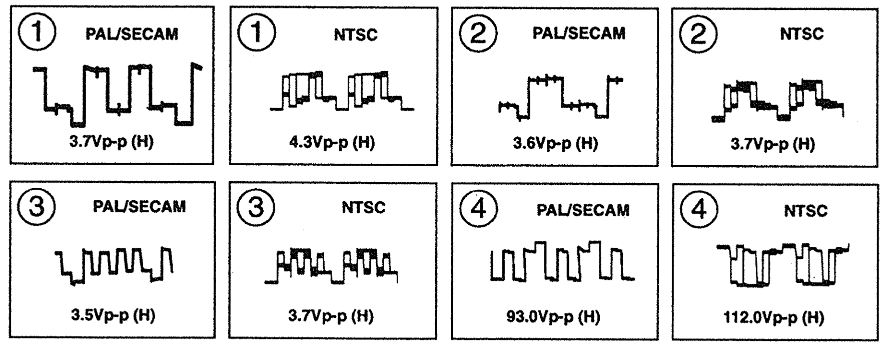

1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
V901
PICTURE TUBE
07MXC (R)
HV.BLOCK
CR
(R OUT)
TO FOCUS BLOCK
CN705
FGND
GND
CN706
9P
WHT
:S-MICRO
TO CG BOARD CN736
R/S
NC
H (+)
H (-)
NC
NC
200V
NC
E
CN704
1P
WHT
:MINI
G2
TO FOCUS BLOCK
CN701
:FASTON
CN703
7P
RED
:S-MICRO
TO AE (2/2) BOARD CN301
R
G
B
9V
E
IK
E
CN702
8P
WHT
:S-MICRO
TO CG BOARD CN733
IKG
IKB
E
9V
E
B
G
E
S0701
S0702
S0703
TP701
200V
9V
L701
L702
D704
1SS133
D705
D706
D708
Q701
2SA1091
IK DET
Q703
BF871-127
R OUT
Q704
2SC5311A
R OUT
Q705
2SA1309A
BUFF
Q706
2SA1309A
IK DET
D709
MTZJ-5.1
B-SS510.<AEP>-CR.

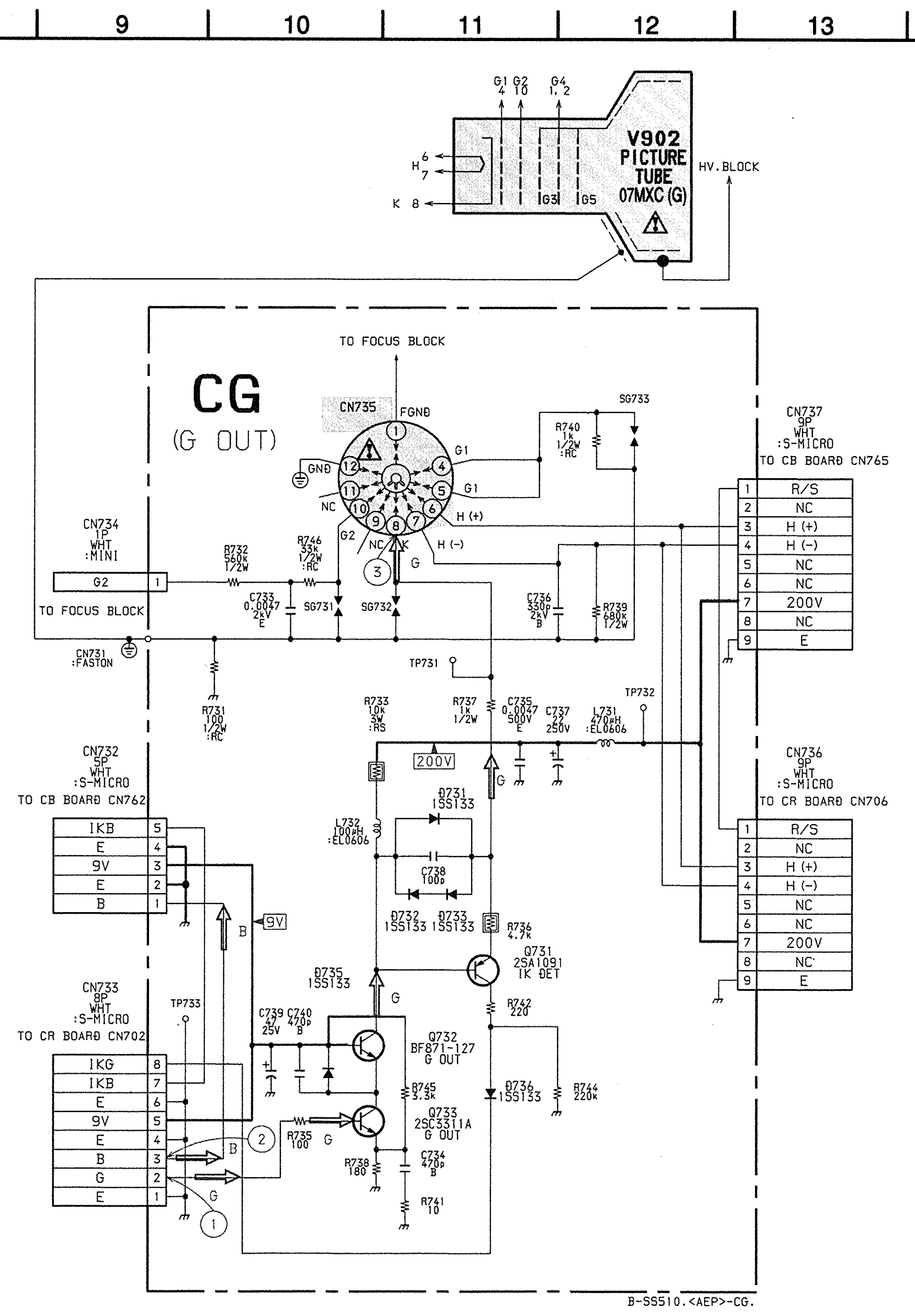
CR BOARD TRANSISTOR VOLTAGE LIST

REF.		VOL.
Q701	B	160.9
	E	156.9
	C	11.3
Q703	B	9.0
	E	8.5
	C	160.9
Q704	B	1.8
	E	1.2
	C	8.5
Q705	B	3.4
	E	3.2
	C	GND
Q706	B	5.7
	E	10.9
	C	3.4

All voltages are in V.

• CR BOARD WAVEFORMS



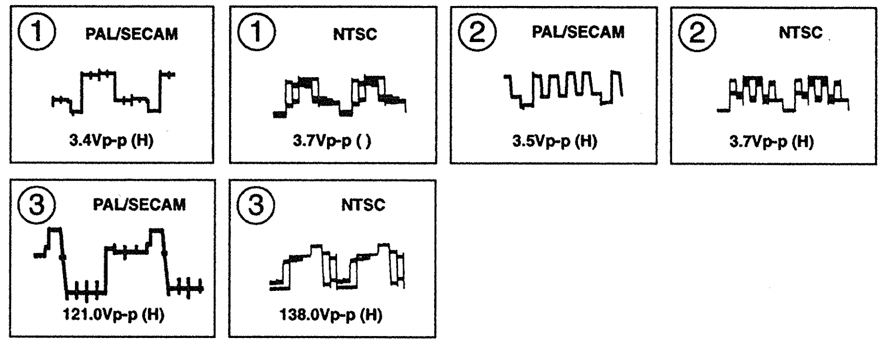

7
8
9
10
11
12
13
14
15
V902
PICTURE TUBE
07MXC (G)
HV.BLOCK
CG
(G OUT)
TO FOCUS BLOCK
CN735
FGND
GND
CN737
9P
WHT
:S-MICRO
TO CB BOARD CN765
CN736
9P
WHT
:S-MICRO
TO CR BOARD CN706
R/S
NC
H (+)
H (-)
NC
NC
200V
NC
E
CN734
1P
WHT
:MINI
G2
TO FOCUS BLOCK
CN731
:FASTON
CN732
5P
WHT
:S-MICRO
TO CB BOARD CN762
IKB
E
9V
E
B
CN733
8P
WHT
:S-MICRO
TO CR BOARD CN702
IKG
IKB
E
9V
E
B
G
E
TP731
TP732
TP733
200V
9V
Q731
2SA1091
IK DET
Q732
BF871-127
G OUT
Q733
2SC5311A
G OUT
D731
1SS133
B-SS510.<AEP>-CG.

CG BOARD TRANSISTOR VOLTAGE LIST

REF.		VOL.
Q731	B	150.4
	E	144.4
	C	11.5
Q732	B	9.0
	E	8.5
	C	150.4
Q733	B	1.8
	E	1.3
	C	8.5

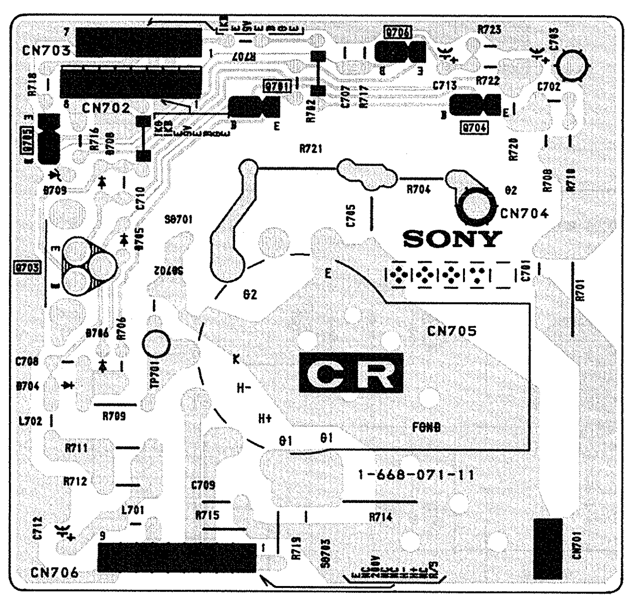
All voltages are in V.

• CG BOARD WAVEFORMS



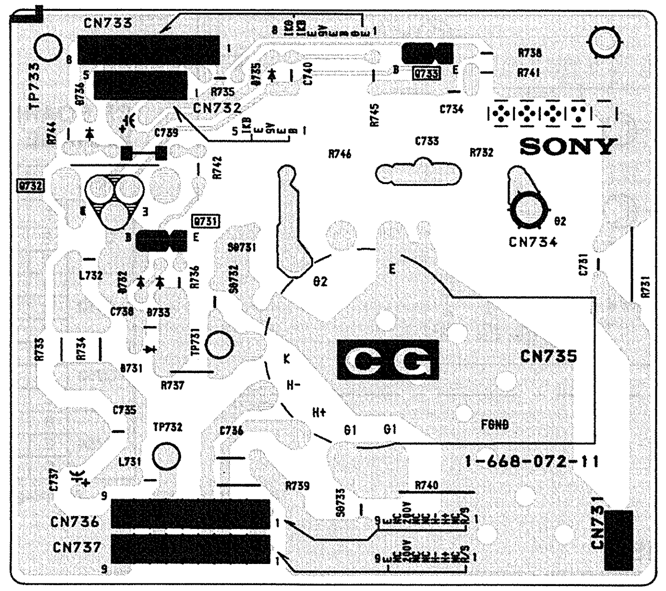
CR [R OUT]

– CR Board –


CN703
CN702
CN704
SONY
CN705
CR
1-668-071-11
CN706
CN701
S0701
FGND

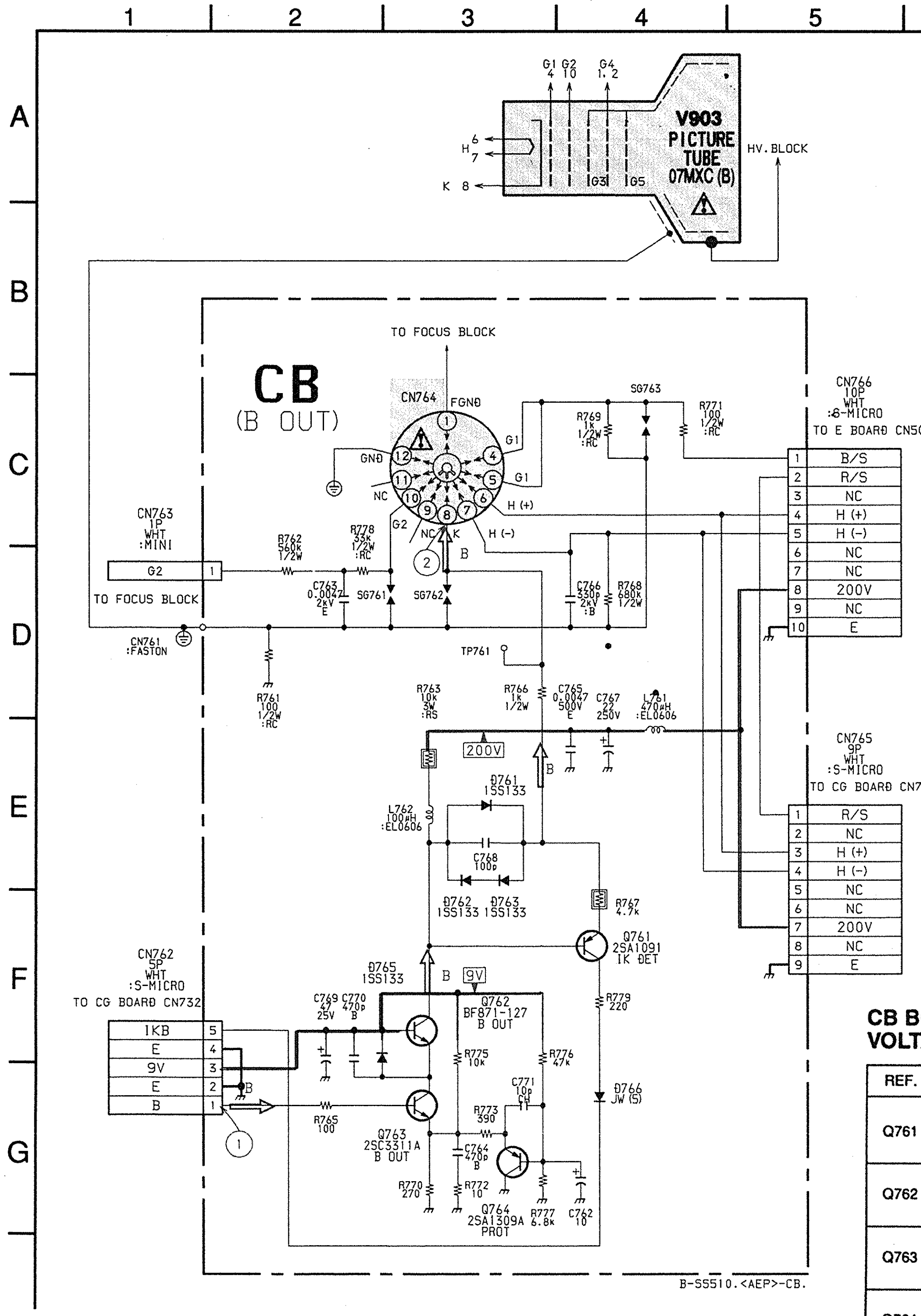
CG [G OUT]

– CG Board –


CN733
CN732
SONY
CN734
CG
CN735
1-668-072-11
CN736
CN737
CN731
TP735
FGND

Schematic diagrams
← CG CR boards

Schematic diagrams
CB UE boards →

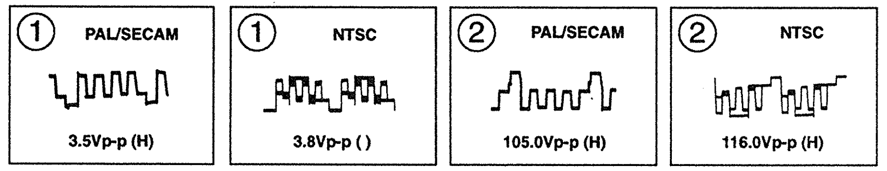

1
2
3
4
5
6
A
B
C
D
E
F
G
V903
PICTURE TUBE
07MXC (B)
G1 4
G2 10
G4 1, 2
H 6
7
K 8
G3
G5
HV.BLOCK
CB
(B OUT)
TO FOCUS BLOCK
CN764
FGND
GND
NC
G1
H (+)
H (-)
G2
K
B
SG763
R769 1k 1/2W :RC
R771 100 1/2W :RC
CN766 10P WHT :S-MICRO
TO E BOARD CN501
1 B/S
2 R/S
3 NC
4 H (+)
5 H (-)
6 NC
7 NC
8 200V
9 NC
10 E
CN763 1P WHT :MINI
G2
TO FOCUS BLOCK
R762 560k 1/2W
R778 33k 1/2W :RC
C763 0.0047 2kV E
SG761
SG762
C766 330p 2kV :B
R768 680k 1/2W
CN761 :FASTON
TP761
R761 100 1/2W :RC
R763 10k 3W :RS
R766 1k 1/2W
C765 0.0047 500V E
C767 22 250V
L761 470μH :EL0606
200V
CN765 9P WHT :S-MICRO
TO CG BOARD CN737
1 R/S
2 NC
3 H (+)
4 H (-)
5 NC
6 NC
7 200V
8 NC
9 E
D761 1SS133
L762 100μH :EL0606
C768 100p
D762 1SS133
D763 1SS133
R767 4.7k
Q761 2SA1091 IK DET
CN762 5P WHT :S-MICRO
TO CG BOARD CN732
IKB 5
E 4
9V 3
E 2
B 1
D765 1SS133
9V
C769 47 25V
C770 470p B
Q762 BF871-127 B OUT
R775 10k
R776 47k
R779 220
D766 JW (5)
R765 100
Q763 2SC3311A B OUT
R773 390
C771 10p CH
C764 470p B
R770 270
R772 10
Q764 2SA1309A PROT
R777 6.8k
C762 10
①
②
B-SS510.<AEP>-CB.

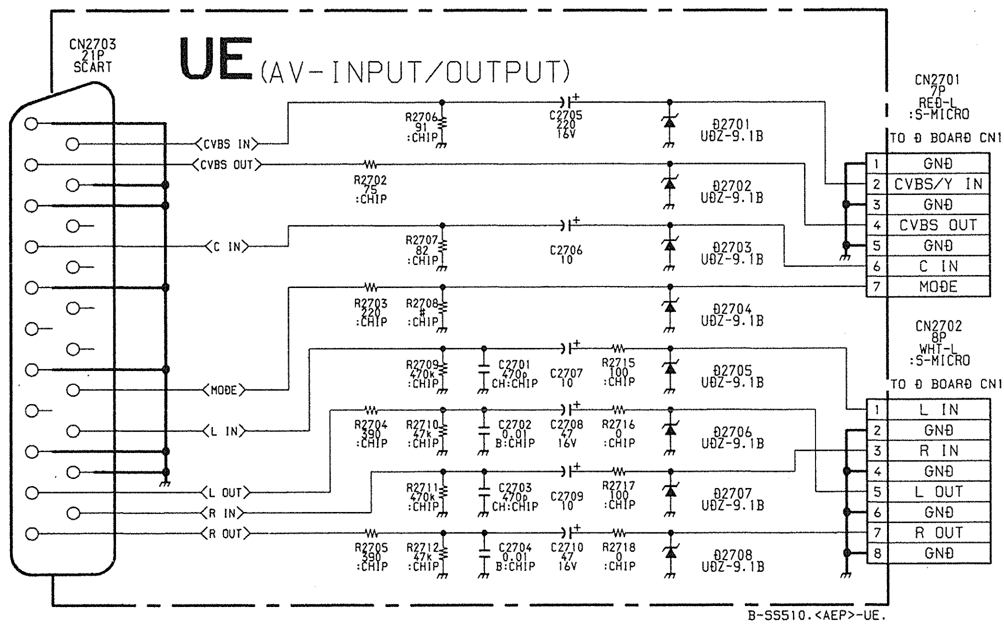
CB BOARD TRANSISTOR VOLTAGE LIST

REF.		VOL.
Q761	B	155.2
	E	149.4
	C	9.4
Q762	B	9.0
	E	8.5
	C	155.2
Q763	B	1.7
	E	1.2
	C	8.5
Q764	B	1.1
	E	1.2
	C	GND

All voltages are in V.

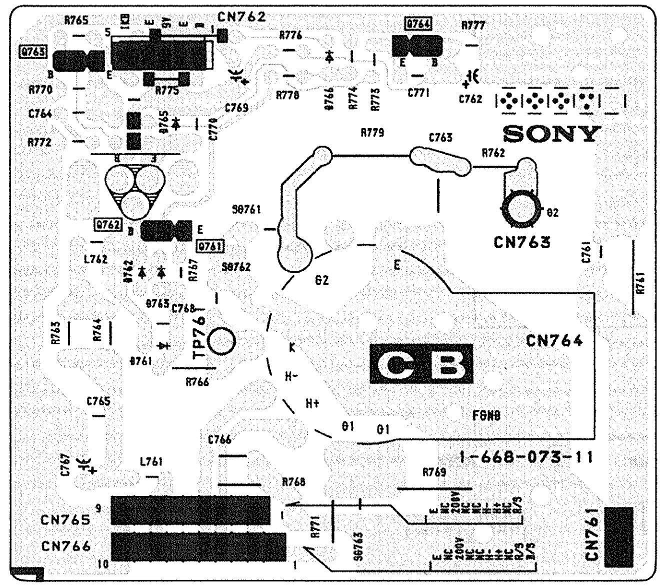
• CB BOARD WAVEFORMS




7
8
9
10
11
12
13
14
CN2703 21P SCART
UE (AV-INPUT/OUTPUT)
CVBS IN
CVBS OUT
C IN
MODE
L IN
L OUT
R IN
R OUT
R2706 91 :CHIP
C2705 220 16V
D2701 UDZ-9.1B
R2702 75 :CHIP
D2702 UDZ-9.1B
R2707 82 :CHIP
C2706 10
D2703 UDZ-9.1B
R2703 220 :CHIP
R2708 ∞ :CHIP
D2704 UDZ-9.1B
R2709 470k :CHIP
C2701 470p CH:CHIP
C2707 10
R2715 100 :CHIP
D2705 UDZ-9.1B
R2704 390 :CHIP
R2710 47k :CHIP
C2702 0.01 B:CHIP
C2708 47 16V
R2716 0 :CHIP
D2706 UDZ-9.1B
R2711 470k :CHIP
C2703 470p CH:CHIP
C2709 10
R2717 100 :CHIP
D2707 UDZ-9.1B
R2705 390 :CHIP
R2712 47k :CHIP
C2704 0.01 B:CHIP
C2710 47 16V
R2718 0 :CHIP
D2708 UDZ-9.1B
CN2701 7P RED-L :S-MICRO
TO D BOARD CN1808
1 GND
2 CVBS/Y IN
3 GND
4 CVBS OUT
5 GND
6 C IN
7 MODE
CN2702 8P WHT-L :S-MICRO
TO D BOARD CN1807
1 L IN
2 GND
3 R IN
4 GND
5 L OUT
6 GND
7 R OUT
8 GND
B-SS510.<AEP>-UE.

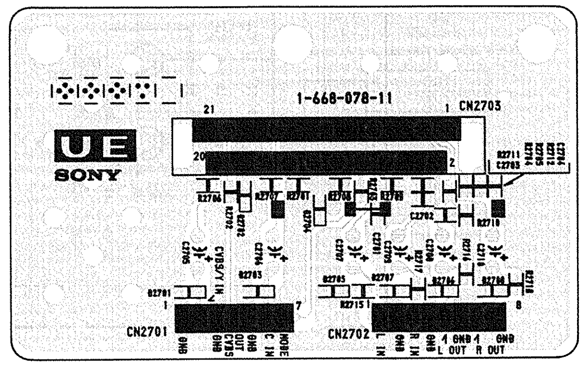
CB [B OUT]

– CB Board –


CN762
SONY
CN763
CN764
CB
1-668-073-11
TP761
CN765
CN766
CN761

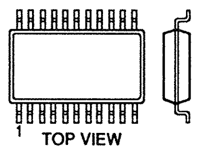
UE [AV-INPUT/OUTPUT]

– UE Board –


UE
SONY
1-668-078-11
CN2703
CN2701
CN2702

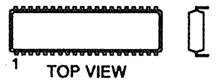
5-5. SEMICONDUCTORS

AT24E32M6TR
CA0007AM
ST24C08FM6TR
TL082M
μPC4558G2



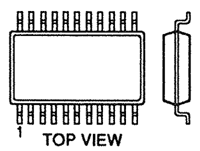
8pin

CA0007AD
NJM2058D
RC4560D
TDA2822M
TDA7264



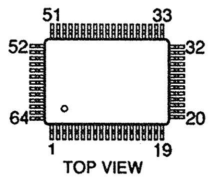
8pin

CXA1315M
MC14052BDR2



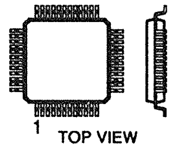
16pin

CXA2076Q-TL


51
33
52
32
64
20
1
19
TOP VIEW

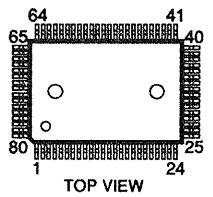
64pin

CXD2024AQ-T4
SDA30C263-GEG

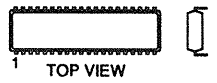


80pin

CXD2044Q-TL

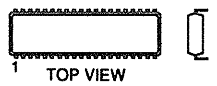

64
41
65
40
80
25
1
24
TOP VIEW

CXP86213-001S



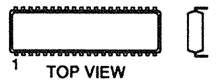
52pin

IR2112
μPC339C



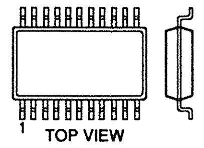
14pin

IR3M02A
TDA4665T-T



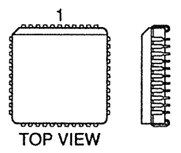
16pin

MC14066BF



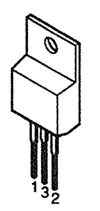
14pin

MSP3410D-PS-B4-T-ND
SDA527CP-GEG

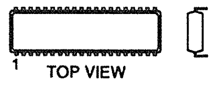


68pin

NJM7805FA
NJM7905FA

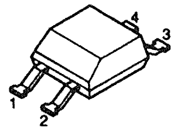


PA0053B

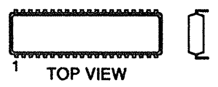


18pin

PC123F2

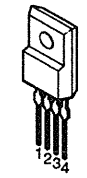


PM0002B

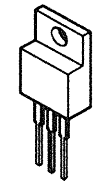


42pin

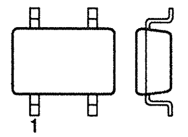
PQ05RF11



PQ09RF2
TA7812S
UPC2405HF

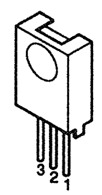


PST593C-MMP-4P
PST9143NL

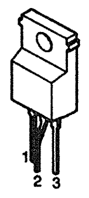


4pin

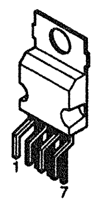
SBX1981-51



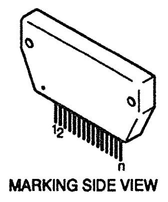
SE135N



STV9379

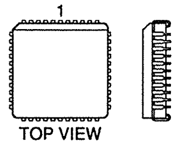


STK392-150


1
2
n
MARKING SIDE VIEW

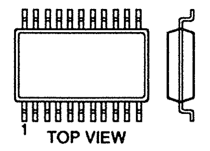
18pin

TDA8395T/N3



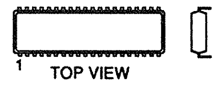
20pin

TMS27PC020-15FMRW101



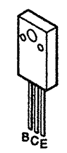
32pin

TOP209D

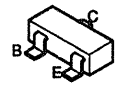


8pin

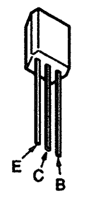
BF871-127



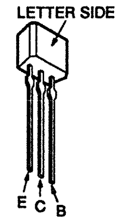
DTA144EK-T146
DTC143TKA-T146
DTC144EK-T146
2SA1037K-T-146-R
2SA1162G
2SC1623-L5L6
2SC2412K-QR



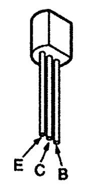
DTC144ESA-TP



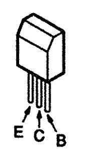
2SA1175-HFE
2SC2785-HFE


LETTER SIDE
E
C
B

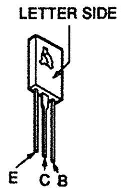
2SA1208
2SC1091-O



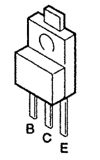
2SB734-34



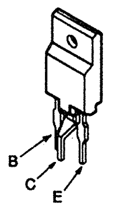
2SC2688-LK


LETTER SIDE
E
C
B

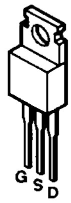
2SC5022-02



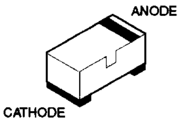
2SC4632LS-CB7
2SD2539 (LBSONY-1)



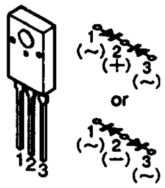
2SK2251-01-F119



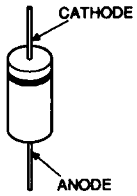
BAS216


ANODE
CATHODE

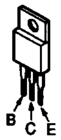
D10SC6M-4012


1
(~) 2
(+) 3
(~)
or
1
(~) 2
(−) 3
(~)
123

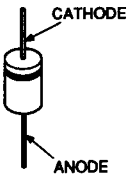
D2S4M
D4SBS4-F


CATHODE
ANODE

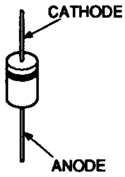
IRFI744G-LF



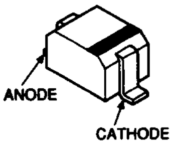
EL1Z
GP08D
MTZ-T-77-9.1A
S2L40F
UF4005PKG23


CATHODE
ANODE

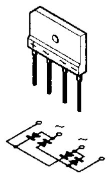
ERC06-15S
ERD29-08J
S2LA20F


CATHODE
ANODE

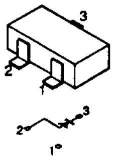
DTZ33B
DTZ6.8B
DTZ9.1
RD5.6S-B
UDZ-TE-17-6.8B
1SS355


ANODE
CATHODE

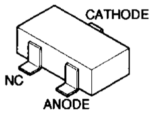
D6SB6OL
RBA-406B



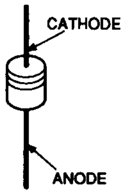
MA3030-H(TX)



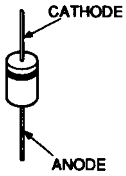
MA3240-TX


CATHODE
NC
ANODE

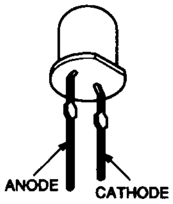
MTZJ-13
MTZJ-30B
MTZJ-7.5B
RD13ES-B2
RD20ES-B2
RD3.6ES-B1
RD39ES-B2
RD5.1ES-B1
RD5.1ES-B2
RD5.6ES-B2
RD7.5ES-B2
1SS119-25
1SS133T-77


CATHODE
ANODE

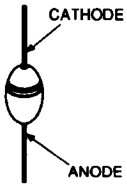
P6KE200AG23


CATHODE
ANODE

SLA-580LT3F

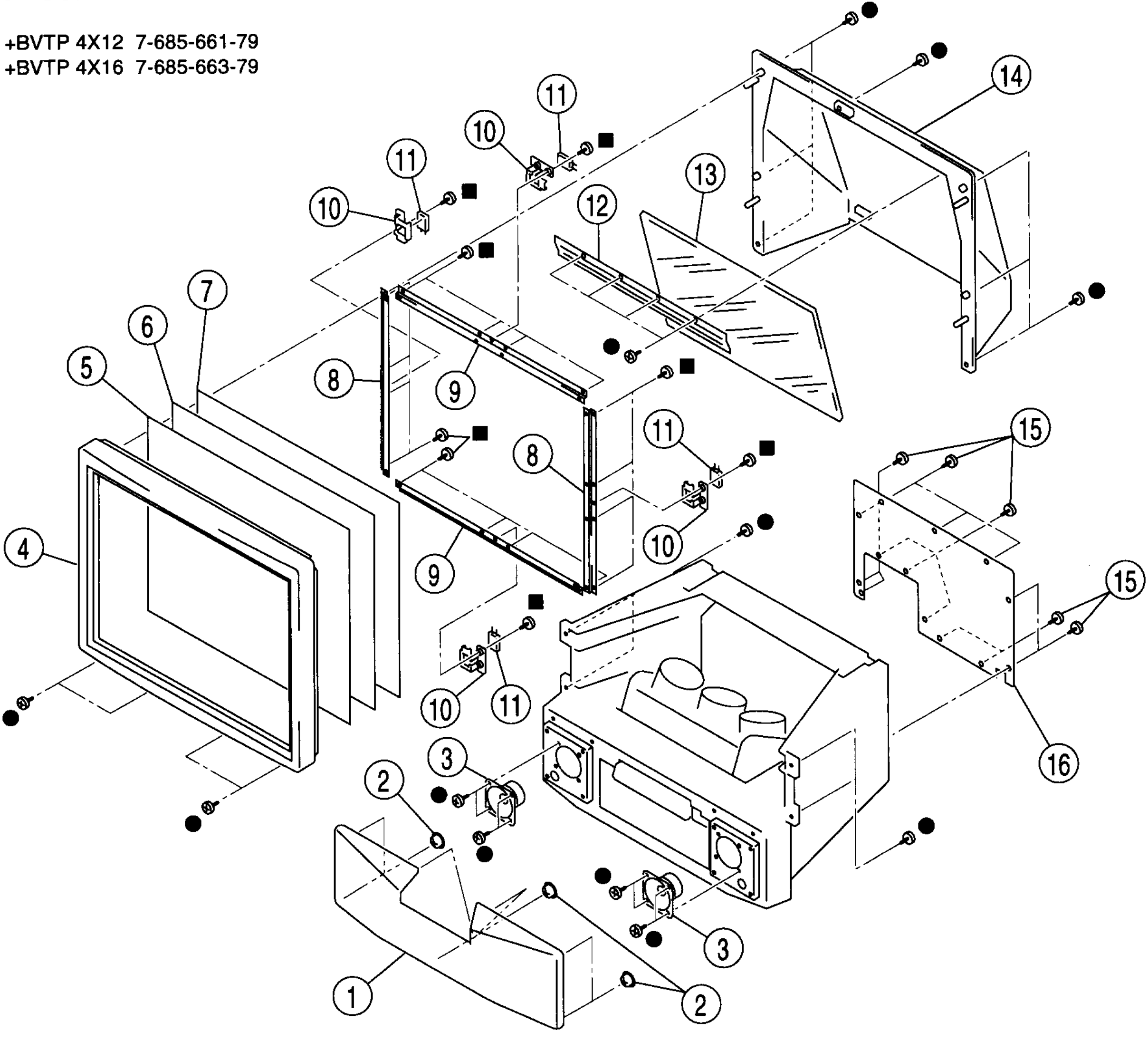

ANODE
CATHODE

U05G


CATHODE
ANODE

6-1. SCREEN AND COVER

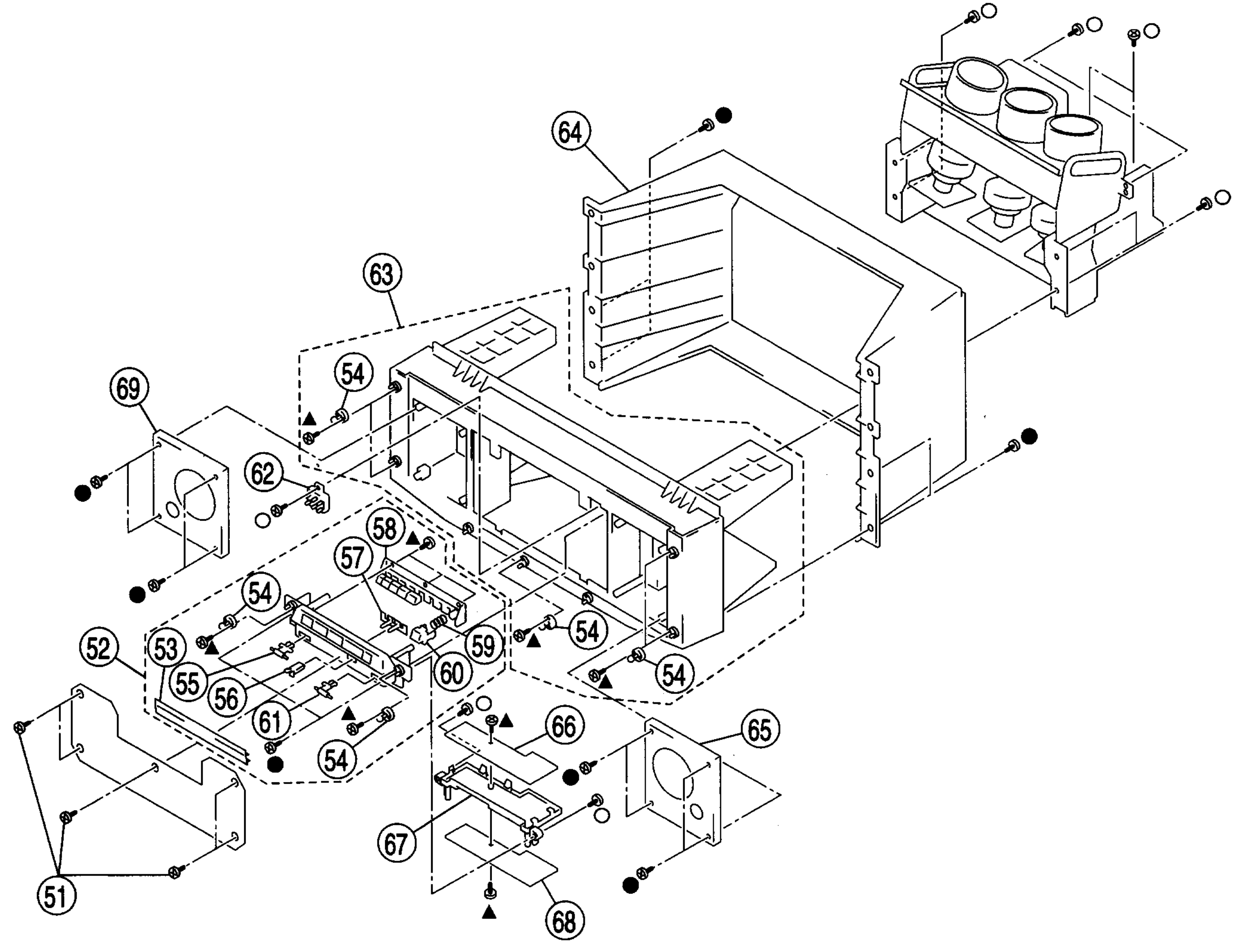
■ : +BVTP 4X12 7-685-661-79
● : +BVTP 4X16 7-685-663-79



14
11
10
11
10
13
12
7
6
5
8
9
8
15
4
11
10
9
15
10
11
16
3
2
3
1
2

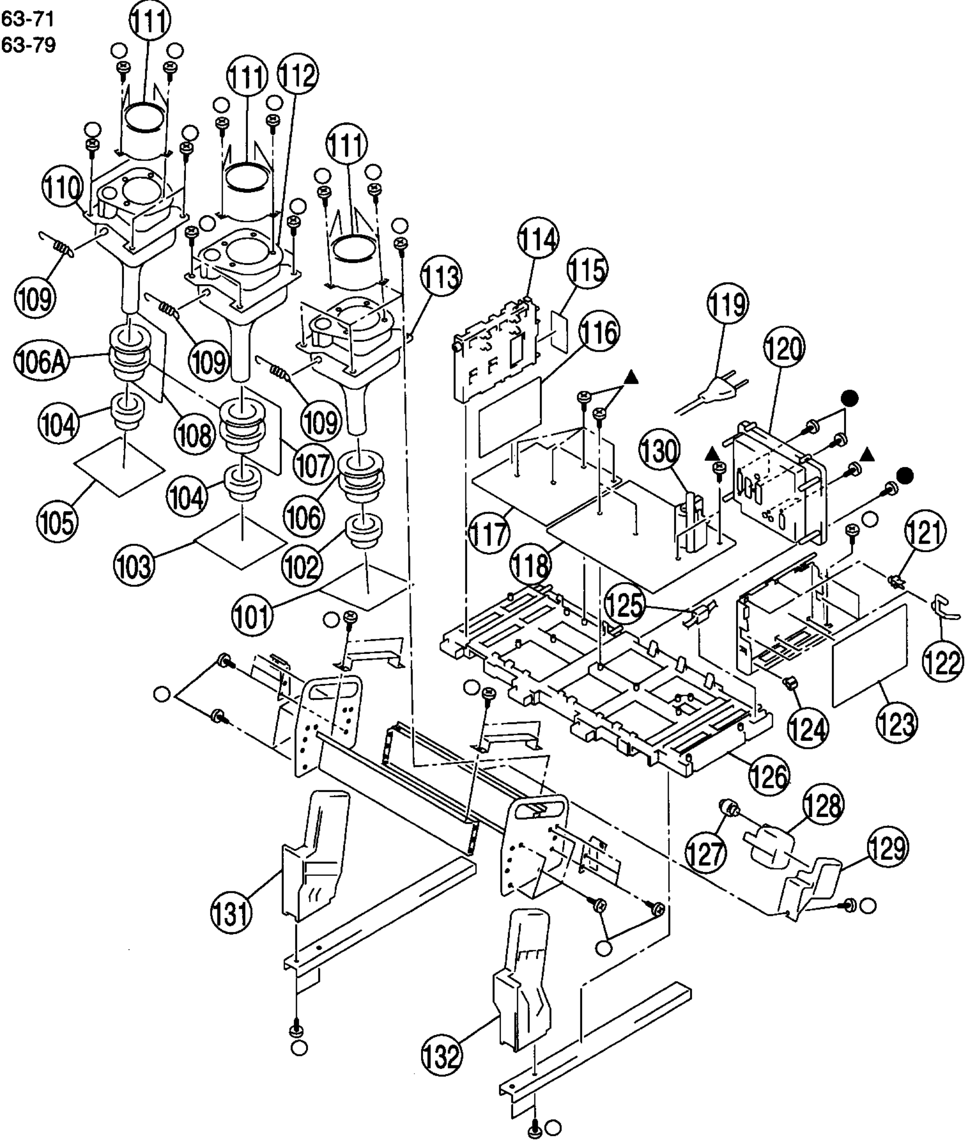
6-2. CABINET AND PANEL BLOCK

▲ : +BVTP 3X12 7-685-648-79
○ : +BVTP 4X16 7-685-663-71
● : +BVTP 4X16 7-685-663-79


64
63
54
69
62
58
57
54
52
53
55
56
61
54
60
59
54
54
66
65
67
51
68

6-3. CHASSIS AND PICTURE TUBE

▲ : +BVTP 3X12 7-685-648-79
○ : +BVTP 4X16 7-685-663-71
● : +BVTP 4X16 7-685-663-79


111
111
112
111
110
109
109
109
113
114
115
116
119
120
106A
104
108
107
106
104
105
103
102
101
117
118
130
125
121
122
123
124
126
127
128
129
131
132